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RESULT 12
PCT-025-01618-1
Sequence 1, Application PC/TUS9501618
GENERAL INFORMATION:
APPLICANT
APPLICANT
TILLE OF INVENTION: Protein
NUMBER OF SEQUENCES: 20
NUMBER OF SEQUENCES: 20
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 STATE STREET, SUITE 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 0.7%; Score 22; DB 5; Length 953; Best Local Similarity 100.0%; Pred. No. 4.6; Matches 22; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                        Query Match 0.7%; Score 22; DB 2; Length 953; Best Local Similarity 100.0%; Pred. No. 4.6; Matches 22; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: USSN 08/197,793
ATTORNEY/AGENT INFORMATION.
NAME: DECONTI, GIULIO A., Jr.
REGISTRATION NUMBER: 31,503
REFERENCE/DOCKET NUMBER: BBI-006CPPC
TELECOMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEPHONE: (617) 227-7400
TELEPHONE: (617) 227-75941
INFORMATION FOR SEQ. ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: ASCII text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/01618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3079 tgtgaaaaaaaaaaaaaaa 3100
                                                                                                                                                                                                                                                                                                                    Qy 3079 tgtgaaaaaaaaaaaaaa 3100
                                                                                                                                                                                                                                                                                                                                            903 TGTGAAAAAAAAAAAAAAA 924
SEQUENCE CHARACTERISTICS:
LENGTH: 953 base pairs
TYPE: nucleic acid
STRANEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 953 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: BOSTON
STATE: MASSACHUSETTS
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64..681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: CDNA
                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ) NAME/KEY: CDS
; LOCATION: 64..
PCT-US95-01618-1
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02109
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 530
PRIOR APPLICATION DATE: 19-APR-1991; 08/004,199
FILING DATE: 19-APR-1991; 13-JAN-1993
ATTORNEY/AGEWT INFORMATION:
NAME: DECONTI, GILLIO A., Jr.
REGISTRATION NUMBER: 31,503
REFERENCE/DOCKET UNMBER: BBI-006CNCP
TELECOMMUNICATION INFORMATION:
TELEFRAN. (617) 227-7400
TELEFRAN. (617) 227-5941
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                 NAME: Deconti, Gillio A., Jr.
REGISTRATION NUMBER: 31,503
REFERENCE/DOCKET NUMBER: BBI-006CNCP
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEPHONE: (617) 227-7401
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: ASCII text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/636,176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/688,019;
FILING DATE: 19-APR-1991
APPLICATION NUMBER: 08/004,199
FILING DATE: 13-JAN-1993
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3079 tgtgaaaaaaaaaaaaaaa 3100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          903 TGTGAAAAAAAAAAAAAAA 924
                                                                                                                                                                                                                                                                               LENGTH: 953 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                   ; NAME/KEY: CDS
; LOCATION: 64..681
US-08-197-793-1
                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02109
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Gaps

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US-08-32-180-6
Sequence 6, Application US/08832180
Fatent No. 6214584
GENERAL INFORMATION:
APPLICANT: KABUSHIKI KAISHA HAYASHIBARA SEIBUTSU KAGAKU
                                                                                                                                                                                                                                                                                                                                                      PRODUCTION INDUCING
                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Browdy and Neimark
STREET: 419 Seventh Street N.W. Ste. 300
CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Word Perfect Version 5.0 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/832,180 FILING DATE: CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Browdy, Roger L.
REGISTRATION NUMBER: 25,618
REFERENCE/DOCKET NUMBER: USHIO-1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 737-3528
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHRRACTERISTICS:
LENGTH: 1120 base pairs
LYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/558,191
FILING DATE:
APPLICATION NUMBER: JP 304,203/94
APPLICATION NUMBER: IO046102
APPLICATION NUMBER: IO046102
                                                                                                                                                                                                                APPLICANT: KENKYUJO
APPLICANT: USHIO, Shimpei
APPLICANT: USHIO, Shimpei
APPLICANT: TANIMOTO, Tadao
APPLICANT: TANIMOTO, Tadao
APPLICANT: CANAMEN, HATUKI
APPLICANT: KURIMOTO, Massshi
TITLE OF INVENTION: INTERFERON- PI
TITLE OF INVENTION: POLYPEFTIDE
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: 178-285 leader peptide IDENTIFICATION METHOD; S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: September 18, 1995
ATTORNEY/AGENT INFORMATION:
1099 TGTGAAAAAAAAAAAAAAA 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: 286-756 mat peptide IDENTIFICATION METHOD: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACECULE TYPE: CDNA to MRNA HYPOTHETICAL: NO ANTI-SPROTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: 757-1120 3'-UTR IDENTIFICATION METHOD: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: 1-177 5'-UTR IDENTIFICATION METHOD: FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IDENTIFICATION METHOD:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: human
TISSUE TYPE: liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ANTI-SENSE: NO
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE:
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                                                                                             Sequence 2, Application US/08884324

Patent No. 6060283

GENERAL INFORMATION:

APPLICANT: Takanori OKURA

APPLICANT: Takanori OKURA

APPLICANT: Rakuji TORIGOE

APPLICANT: Rakuji TORIGOE

APPLICANT: Rakuji TORIGOE

TITLE OF INVENTION: GENOMIC DNA ENCODING A POLYPEPTIDE CAPABLE

TITLE OF INVENTION: OF INDUCING THE PRODUCTION OF INTERFERON-
NUMBER OF SEQUENCES: 35

CORRESPONDENCE ADDRESS:

ADDRESSEE: BROWDY AND NEIMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ó
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                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:

COMPUTER READABLE FORM:

MEDLUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent In Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/884,324

FILING DATE:
                                                                                                                                                                                                                                                                                                                                     STREET: N.W., Suite 300 CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 185,305/96
ATTORNEY/AGENT INFORMATION:
NAME: BRÖWDY, ROGER LS, 618
REGISTRATION NUMBER: OKURA-I
REGISTRATION NUMBER: OKURA-I
RELEPRINCE/COCKET WINDER: OKURA-I
TELEPRAN: 202-628-5197
TELEPRAN: 202-737-3528
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 1120 Dasa pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3079 tgtgaaaaaaaaaaaaaaa 3100
903 TGTGAAAAAAAAAAAAAAAA 924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDENTIFICATION METHOD: E MANE/KEY: Leader peptide LOCATION: 178..285 IDENTIFICATION METHOD: S MANE/KEY: mat peptide LOCATION: 286..756 IDENTIFICATION METHOD: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linear
MOLECULE TYPE: CDNA to MRNA
HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; LOCATION: 757..1120
; IDENTIFICATION METHOD:
US-08-884-324-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE TYPE: liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: 5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ANTI-SENSE: NO
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION:
                                                             RESULT 13
US-08-884-324-2
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Search completed: July 8, 2002, 11:31:32
Job time: 10354 sec
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                                                                                                                Gaps
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                                                                                                             0;
                                                                                                                                                                                                                 RESULT 15
US-08-849-751-3
IS-SEQUENCE 3, APPLICATION US/08849751
FACENT NO. 6190890
GENERAL INFORMATION:
APPLICANT: VAN DES BROECK, HENRIETTE C.
APPLICANT: VAN OOYEN, ALBERT H.
APPLICANT: VAN OOYEN, ALBERT H.
APPLICANT: VAN OOYEN, ALBERT J.J.
TITLE OF INVARION: FUNGAL CELULASES
NUMBER OF SEQUENCES: 4
CORRESPONDENCES: 4
ADDRESSEE: MORRISON & FOERSTER
STREET: 2000 Pennsylvania Avenue, NW, suite 5500
CITY: Washington
STREET: 2000 Pennsylvania Avenue, NW, suite 5500
CITY: Washington
STREET: 2000 Pennsylvania Avenue, NW, suite 5500
COUNTER: DE
COUNTER: DE
COUNTER: DISACTER
MEDIUM TYPE: DISACTER
COMPUTER: IBM COMPATIBLE
COMPUTER: IBM COMPATIBLE
COMPUTER: IBM COMPATIBLE
COMPUTER: 12-1000
SPERATING SYSTEM: DOS
SOFTWARE: FESSISEC for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: DCT/EP96/04511
FILING DATE: 12-JUN-1997
CLASSIFICATION NUMBER: PCT/EP96/04511
FILING DATE: 14-OCT-1996
ATTORNEY/AGENT INFORMATION:
NAME: MALEATION NUMBER: 29,959
REFERENCE/DOCKET NUMBER: 29,959
REFERENCE/DOCKET NUMBER: 29,959
TELEPONMUNICATION NUMBER: 20,959
TELEPAX: 202-827-1500
                                                            Query Match 0.7%; Score 22; DB 4; Length 1120; Best Local Similarity 100.0%; Pred. No. 4.5; Matches 22; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 0.7%; Score 22; DB 4; Length 1198; Best Local Similarity 100.0%; Pred. No. 4.5; Matches 22; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: Coding Sequence
COCATION: 32...1024
COTHER INFORMATION: product~"Cellulase"
COTHER 104.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEX:
TELEX:
TELEX:
TELEX:
SEQUENCE CHARACTERISTICS:
LENGTH: 1198 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
MOLECULE TYPE: nonA
HYPOTHETICAL: NO
ANTI-SENSE: NO
ORIGINAL SOURCE:
ORGANISM: Aspergillus niger
STRAIN: N400
INITYTHEM: A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN: N400
INDIVIDUAL ISOLATE: CBS120.49
                                                                                                                                                       3079 tgtgaaaaaaaaaaaaaaa 3100
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APPLICANT: BERGERON, Michel G.
APPLICANT: PICARD, Francois J.
APPLICANT: PICARD, Francois J.
APPLICANT: OUGLLETTE, Marc
APPLICANT: ROY, Paul H.
TITLE OF INVENTION: SPECIES-SPECIFIC AND UNIVERSAL DNA
TITLE OF INVENTION: PROBES AND AMPLIFICATION PRIMERS TO RAPIDLY DETECT AND
TITLE OF INVENTION: INDEMTIFY COMMON BACFERIAL PATHOGENS AND ASSOCIATED
TITLE OF INVENTION: ANTIBIOTIC RESISTANCE GENES FROM CLINICAL SPECIMENS ...
NUMBER OF SEQUENCES. 273
CORRESPONDENCE ADDRESS:
                                                                       279.30
279.30
285.51
286.54
7.00 108.93 221.80
00 108.93 221.80
7.00 107.13
7.00 106.96 22
7.00 106.93
7.00 106.93
                                                                                                                                                                                                                                                                                                                                 seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-743-637B-192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTY:

ZIP: 53202-4497

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PG-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/743,637B
FILING DATE: 04-NOV-1996
CLASSIETCATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/526,840
FILING DATE: 11-SEP-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length: 8 cails: 1.000 Gaps: 0 Gaps: 0 lignment blook.
                                                     7.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       to: 732
/cgn2_6/ptodata/2/ina/5A_COMB.seq:US-08-398-627-39 + /cgn2_6/ptodata/2/ina/backfiles1.seq:5508199-8 - 7. /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-08-765-332-128 + /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-448-894-128 + /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-821-994-58 + /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-030-607-210 + /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-030-607-210 + /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-439-313-210 +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   from: 1
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REGISTRATION NUMBER: 35,433
REPRENCE/DOCKET NUMBER: 850586.90012
TELECOMMUNICATION INFORMATION:
TELEPHONE: (414) 277-5000
TELERA: (414) 277-5591
INFORMATION FOR SEQ ID NO: 192:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLTY: MIAMUKEE
STATE: WISCONSIN AVENUE
CTTY: MIAMUKEE
STATE: WISCONSIN
COUNTRY: USA
ZID.
                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: US-08-743-637B-192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
US-09-647-377-9 x US-08-743-637B-192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; MOLECULE TYPE: DNA (genomic)
US-08-743-637B-192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 732 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               scoree_list:

Sequence
(7072_Cytodata/2/lina/Se_Comb. seq:19:-09-247-15-44 + 8.00 | 115.96 | 10.01 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 10.02 | 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1029 | 1029 | 1029 | 1029 | 1289 | 1289 | 1489 | 1489 | 1489 | 1489 | 1489 | 1489 | 1489 | 1489 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 18
                                                                                                                                                                                                                                                                                                                                         -MODEL-frame+-p2n.model -DEV=xlh
-Q=/cgn2_1/GSPTO_spool/US09647377/runat_08072002_080021_23088/app_query.fasta_1.940
-Q=/cgn2_1/GSPTO_spool/US09647377/runat_08072002_080021_23088/app_query.fasta_1.940
-Q=/cgn2_1/GSPTO_spool/US09647377/runat_08072012_080021_23088/app_query.fasta_1.940
-GAPOP=4.500 -GAPDEX-B.NA -OFW=fasta_B -SUFFIX-0.100 -1cOPCL=0.000
-LOOPEXT=0.000 -QGAPOP=4.500 -GAPDEXT=0.050 -XGAPOP=60.000
-YGAPEXT=60.000 -DELOP=6.000 -FGAPEXT=7.000 -YGAPOP=60.000
-YGAPEXT=60.000 -DELOP=6.000 -DELEXT=7.000 -YGAPOP=60.000
-YGAPEXT=60.000 -DELOP=6.000 -DELEXT=7.000 -YGAPOP=60.000
-YGAPEXT=60.190 -TRANS=human40.cd1 -LIST=45 -DOCALIGN=200
-YTH_SCORE=quality -THR_MIN=1 -ALIGN=15 -MODE=LOCAL -OUTFMT=pfs
-NORM=ext -HEAPSIZE=500 -NINLEN-0 -MAXLEN=2000000000
-USER=US09647377_@CGN1_1_1142 -NCPU=6. LICPU=3 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -NO_XLEXY -WAIT -THREADS=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WARN: XGAPOP and YGAPOP must be equal. Assuming YGAPOP-XGAPOP=60.000 WARN: XGAPEXT and YGAPEXT must be equal. Assuming YGAPEXT=XGAPEXT=60.000
                                                                                                                                                                                  About: Results were produced by the GenCore software, version 4.5, Copyright (c) 1993-2000 Compugen Ltd.
                                   out_format : pfs
                               OM of: US-09-647-377-9 to: Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database: Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Search time (sec): 55.110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database sequences: 383533
Database length: 122816752
                                                                                                               Date: Jul 8, 2002 2:12 PM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Search information block:
Query: US-09-647-377-9
                                                                                                                                                                                                                                                                                                                            Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query length: 870
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Palo Alto

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seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-247-155-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seg_name: /cgn2_6/ptodata/2/ina/6A_COMB.seg:US-08-911-853-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1. Application US/08911853
Fatent No. 6048710
GENERAL INFORMATION:
APPLICANT: GETILIS, Glisbert
APPLICANT: Quax, Wilhelmus J.
TITLE OF INVENTION: EXPRESSION SYSTEM FOR ALTERED
TITLE OF INVENTION: EXPRESSION LEVELS
NUMBER OF SEQUENCES: 37
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genencor International
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ratio: 1.000 Gaps: 0
Percent Similarity: 100.000 Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    from: 1 to: 893
                                        seq_documentation_block:
Sequence 44, Application US/09247155A;
Patent No. 6312922;
GENERAL INFORMATION:
APPLICANT: Dumas Milne Edwards, Jean-Baptiste,
APPLICANT: Dumas Milne Edwards, Jean-Baptiste,
APPLICANT: Bouguelert, Lydie
TITLE OF INVENTION: Complementary DNAS
FILE REFERENCE: GENEET. 1021A
CURRENT APPLICATION NUMBER: US/09/247,155A
CURRENT FILING DATE: 1998-02-09
EARLIER APPLICATION NUMBER: 60/081,563
EARLIER APPLICATION NUMBER: 60/081,563
EARLIER FILING DATE: 1998-04-10
EARLIER FILING DATE: 1998-04-10
EARLIER FILING DATE: 1998-08-10
EARLIER FILING DATE: 1998-10-04
NUMBER OF SEQ ID NOS: 182
ELENGTH: 893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: s1g_peptide
LOCATION: 42..200
OTHER INFORMATION: Von Heijne matrix
OTHER INFORMATION: score 5.8
OTHER INFORMATION: seq ILSLQVLLTTVTS/TV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Genencor International STREET: 925 Page Mill Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Align seg 1/1 to: US-09-247-155-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       137 GGCCTTTCTGAGAAAAGTCTACAG 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        221 GlyLeuSerGluLysSerLeuGln 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
US-09-647-377-9 x US-09-247-155-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY: polyA_signal
LOCATION: 860..865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; NAME/KEY: polyA_site
; LOCATION: 878..893
US-09-247-155-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
NAME/KEY: CDS
LOCATION: 42..755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Quality:
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seq_documentation_block:

Sequence 1, Application US/09479409

Patent No. 6225106

GENERAL INFORMATION:

APPLICANT: Geritise, Gijsbert

APPLICANT: Quax, Wilhelmus J.

TITLE OF INVEWTION: EXPRESSION SYSTEM FOR ALTERED

TITLE OF INVENTION: EXPRESSION LEVELS

NUMBER OF SEQUENCES: 37

CORRESPONDENCE ADDRESS:

ADDRESSEE: Genencor International

STREET: 925 Page Mill Road

COTTY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-479-409-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quality: 8.00 Length: 8 Ratio: 1.000 Gaps: 0 Percent Similarity: 100.000 Percent Identity: 100.000
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                                                                                                                                                                                         COMPUTER: ALDW COMPUTER:
COMPUTER: ALDW COMPUTER:
SOFTWARE: FASTERO for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,853
FILING DATE:
PROF APPLICATION DATA:
APPLICATION NUMBER: 08/699,092
FILING DATE: 16-AUG-1996
ATORNEY/AGENT INFORMATION:
NAME: Glaister, Debra J
REFERENCE/DOCKET NUMBER: 33,888
REFERENCE/DOCKET NUMBER: GG361-2
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-846-7620
TELEPHONE: ALD SOFTWARE SOFTW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/479,409
FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/911,853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_block:
US-09-647-377-9 x US-08-911-853-1/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
LENGTH: 1029 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 94304-1013
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
IRY: USA
94304-1013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-911-853-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE:
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US-09-479-453-1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-479-453-1
                                                                                                                                                                                                                                                                                                                                                                                  Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Geritse, Gijsbert
APPLICANT: Quax, Wilhelmus J.
TITLE OF INVENTION: EXPRESSION SYSTEM FOR ALTERED
TITLE OF INVENTION: EXPRESSION LEVELS
NUMBER OF SEQUENCES: 37
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genencor International
STREET: 925 Page Mill Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Align seg 1/1 to reverse of: US-09-479-409-1 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version 2.0 CURRENT APPLICATION DATE: APPLICATION NUMBER: US/09/479,453 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/911,853
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Glaister, Debra J
REGISTRATION NUMBER: 33,888
REFERENCE/DOCKET NUMBER: GC361-2
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-846-7620
                                                                                       GC361-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_block:
US-09-647-377-9 x US-09-479-409-1/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_documentation_block:
    Sequence 1, Application US/09479453
    patent No. 6313283
  FILING DATE:
ATTORNEY/AGENT INPORMATION:
NAME: Glaister, Debra J
REGIETRATION NUMBER: 33,888
REFERENCE/DOCKET NUMBER: GC361
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-846-7620
TELEPHONE: 650-846-5504
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 1029 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 538 ArgArgGlnArgPheValAspGly 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        252 CGCGCCAGCGGTTCGTCGATGGC 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTEY: USA
ZIP: 94304-1013
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 650-845-6504
TELEFAX: 650-845-6504
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 1029 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                         Quality: 8.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Palo Alto
                                                                                                                                                                                                                                                                                                                                                                           alignment_scores:
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seq_documentation_block:
Sequence 22, Application US/08358627F
Sequence 22, Application US/08358627F
Patent No. 6177242
GENERAL INFORMATION:
APPLICANT: Changeux, Jean-Pierre
APPLICANT: Changeux, Jean-Pierre
APPLICANT: Bessis, Alain
TITLE OF INVENTION: Genomic DNA Fragments Containing
TITLE OF INVENTION: Regulatory and Coding Sequences For The B2-Subunit of the
TITLE OF INVENTION: Neuronal Nicotinic Acetylcholine Receptor and Transgenic
TITLE OF INVENTION: Animals Made Using These Fragments or Mutated Fragments
NUMBER OF SEQUENCES: 33
NUMBER OF SEQUENCES: 33
Annergenen: Alain Sequence Alain Sequence Annergenents
Annergenen: Alain Sequence Alain Sequence Annergenents
Annergenen: Alain Annerg
                                                                                                                                                                                                                                                                                                                  Align seg 1/1 to reverse of: US-09-479-453-1 from: 1 to: 1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-08-358-627F-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Finnegan, Henderson, Farabow, Garrett & ADDRESSEE: Dunner, L.L.P.
STREET: 1300 I Street, N.W.
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READBLE FORM:
COMPUTER: FLOPPY disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
FILING DATE: 14-DEC-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps: 0
Percent Identity: 100.000
             Gaps: 0 Gaps: 0 Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03495.0135-00000
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
TELEFAX: 202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Align seg 1/1 to: US-08-358-627F-22
                                                                                                                                                                                                       alignment_block:
US-09-647-377-9 x US-09-479-453-1/rev
                                                                                                                                                                                                                                                                                                                                                                                                               alignment_block:
US-09-647-377-9 x US-08-358-627F-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 22: SEQUENCE CHARACTERISTICS: LENGTH: 1289 base pairs TYPE: nucleic acid STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ratio: 1.000
Percent Similarity: 100.000
                                                                     Ratio: 1.000
Percent Similarity: 100.000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-358-627F-22
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alignment_scores
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alignment_scores:
                                                                                                                                                                                                                                                                                                                                             FEATURE:
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                                                                                                                                                                         PATENT NO JOUGEN TO THE TRANSMERT OF THE APPLICANT: HSU, Yen-Ming APPLICANT: HSU, Yen-Ming TITLE OF INVENTIONS GENE THERAPY METHODS AND COMPOSITIONS NUMBER OF SEQUENCES: 12 CORRESPONDENCE ADDRESS: ADDRESSEE: Blogen, Inc. STREET: 14 Compride Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: mat_peptide

LOCATION: 63..1301

OTHER INFORMATION: /function= "transcription factor"

OTHER INFORMATION: /product= "E2F-4"
US-08-481-814A-3
                                                                                  seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-481-814A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-282-305-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Align seg 1/1 to reverse of: US-08-481-814A-3 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length: 8
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTMARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/481,814A
                                                                                                                                                                                                                                                                                                                                                                  Massachusetts
: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICAL...
FILING DATE:
CLASSIFICATION: 424
ATTORNEY APCRATION:
NAME: Kaplan, Marren A
REBERENCE/DOCKET NUMBER: A001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-679-2000
SELEFAX: 617-679-2038
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 1332 base pairs
..... nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_block:
US-09-647-377-9 x US-08-481-814A-3/rev
                                                                                                                     949 GTGTCCAGTGTTGTTGGCCCCAGT 926
                       seq_documentation_block:
    Sequence 3, Application US/09282305
514 IleSerProGluHisSerValGlu 521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19 ValSerSerValValGlyProSer 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGINAL SOURCE:
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear
MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                   STREET: 14 Cambridge
CITY: Cambridge
STATE: Massachuse
COUNTRY: United S
ZIP: 02142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ANTI-SENSE: NO
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| Parent No. G287843
| Parent No. G287843
| APPLICANT: Baldain, Donald A. APPLICANT: Baldain, Donald A. APPLICANT: Baldain, Veryone D. APPLICANT: Baldain, Veryone D. APPLICANT: Baldain Veryone D. APPLICANT: Baldain Veryone D. APPLICANTON NUMBER: US/09/282,305
| CURRENT FILE OF INVESTION NUMBER: US/09/282,305
| PRIOR FILE OF INVESTION NUMBER: US/09/282,305
| PRIOR PLICANTON NUMBER: US/09/282,305
| PRIOR PRIOR OF US/09/282,305
| PRIOR PRIOR OF US/09/282,305
| CURRENT INVESTION NUMBER: US/09/282,305
| CURRENT INVESTION NUMBER: US/09/282,305
| US/09/282,305-3
| Align meat, Dock: US/09/282,305-3
| Align meat, US/0
```

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ADDRESSEE Nixon & Vanderhye
STREET: 1100 No. 630335th Glebe Road, 8th Floor
CITY: Arlington
STATE: Vitgnia
COUNTRY: US
Z121-4714
COMPUTER: READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
COMPUTER: PatentIn Release #1.0, Version #1.25 (EPO)
CURRENT APPLICATION NUMBER: US/09/265,566
FILING DATE: 10-Mar-1999
CLASSIFICATION: ~UMROWN>
                                                                                                                                                                                                                                                                                                                                                                                             to: 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-265-566-1
                                                                                                                                                                                                                                                        B Gaps: 0 Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1, Application US/09265566
Patent No. 6303335
GENERAL INFORMATION:
APPLICANT: Bernards, Rene
TITLE OF INVENTION: Transcription factor E2F-4
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                             Align seg 1/1 to reverse of: US-08-836-582-1 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA
APPLICATION NUMBER: 08/836,582
FILING DATE: CUDKNOWN>
APPLICATION NUMBER: GB 9423049.7
FILING DATE: 15-NOV-1994
ATTORNEY/AGENT INFORMATION:
NAME: Arthur R. Crawford
REGISTRATION NUMBER: 55,327
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; NAME/KEY: CDS
; LOCATION: 27..1268
; SEQUENCE DESCRIPTION: SEQ ID NO: 1:
US-09-265-566-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-NOV-1994
                                                                                                                                                                                                                                                                                                                                        alignment_block:
US-09-647-377-9 x US-08-836-582-1/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: nucleic acid
STRANDEDNESS: single
INFORMATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS: LENGTH: 1489 base pairs TYPE: nucleic acid sTRANDEDNESS: single TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FOPOLOGY: linear
                                                                                                                                                                                                                                                            Quality: 8.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                     NAME/KEY: CDS
LOCATION: 27..1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_documentation_block:
                                                                                                                                                                                                                                           alignment_scores:
                                                                                                                                                            ;
US-08-836-582-1
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seq_documentation_block:
    Sequence 1, Application US/08579777A
    Sequence 1, Application US/08579777A
    Patent No. 5912153
    GENERAL INFORMATION:
    APPLICANT: Enderlin, Carol S.
    APPLICANT: Selitrennikoff, Claude P.
    TITLE OF INVENTION: (1,3)B-glucan synthase genes and
    TITLE OF INVENTION: inducible inhibition of fungal growth using the antisense
    TITLE OF INVENTION: constructs devived therefrom.
    NUMBER OF SEQUENCES: 6
    CORRESSORE: Davis, Graham & Stubbs L.L.P.
    STREET: 370 Seventeenth Street
                                                                                                                                                                                                                                                                                                                                                                      seq_uocumentation_block:
; Sequence 1, Application US/09282305
; Patent No. 6287843
; GENERAL INFORMATION:
; APPLICANT: Baidwin, Donald A.
; APPLICANT: Briggs, Steven P.
; APPLICANT: Crane, Virginia C.
; TITLE OF INVERTION: Maize Histone Deacetylases And Their Uses
; FILE REFERENCE: 5718-44,
; CURRENT APPLICATION NUMBER: US/09/282,305
; CURRENT FILING DATE: 1999-03-31
; PRIOR APPLICATION NUMBER: 60/080,563
; NUMBER OF SEQ ID NOS: 18
; SOFTWARE: Patentin Ver. 2.0
; SEQ ID NO 1
; LENGTH: 1826
                                                                                                                                                                           to: 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-579-777A-1
                                                                                                                                                                                                                                                                                                                 seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-282-305-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps: 0
Percent Identity: 100.000
                                        Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                           Align seg 1/1 to reverse of: US-09-265-566-1 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Align seg 1/1 to: US-09-282-305-1 from: 1 to: 1826
                                                                                                               alignment_block:
US-09-647-377-9 x US-09-265-566-1/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           913 GTGTCCAGTGTTGTTGGGCCCAGT 890
                                                                                                                                                                                                                                19 ValSerSerValValGlyProSer 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           alignment_block:
US-09-647-377-9 x US-09-282-305-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouality: 8.00
Ratio: 1.000
Percent Similarity: 100.000
                                                               Percent Similarity: 100.000
                                          Ratio: 1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; NAME/KEY: CDS
; LOCATION: (29)..(1405)
US-09-282-305-1
                                                                                                                                                                                                                                                                                                                                                                      seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Zea mays
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Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
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Length: 8 Gaps: 0 Percent Identity: 100.000

to: 3097

from: 1

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Align seg 1/1 to reverse of: US-08-911-853-28 from: 1 to: 4377
                                                                                                                                                                                                                                                                                                                                                                     seq_name: /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-08-911-853-28
                                                                                                                                                                                                                                                                                                                                                                                                             seq_documentation_block:
    Sequence 28, Application US/08911853
    Patent No. 6048710
    GENERAL INFORMATION:
    APPLICANT: Gerrites, Gijsbert
    TITLE OF INVENTION: EXPRESSION LEVELS
    TUMBER OF SEQUENCES: 37
    CORRESPONDENCE ADDRESS:
    ADDRESSEE: Genencor International
    STREET: 925 page Mill Road
    CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OPERATING SYSTEM: DOS
SOFTWARE: FRACESED for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/08/911,853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_block:
US-09-647-377-9 x US-08-911-853-28/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/699,092
FILING DATE: 16-AUG-1996
ATTORNEY AGENT INFORMATION:
NAME: Glaister, Debra J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        538 ArgargGlnArgPheValAspGly 545
                                                                                                                                                                                                                                                                 Align seg 1/1 to: US-09-228-986-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_block:
US-09-647-377-9 x US-09-228-986-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 650-645-6504
INFORMATION FOR SEQ ID NO: 28
SEQUENCE CHARACTERISTICS:
LENGTH: 4377 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ZIP: 94304-1013
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                      Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM COM
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     usa
                                  alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-911-853-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE: C. COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 11. Application US/09228986
Sequence 11. Application US/09228986
Sequence 11. Application US/09228986
GENERAL INCOMMATION:
APPLICANT: Strabala, Timothy
APPLICANT: Strabala, Timothy
TITLE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling
FILE REFERENCE: 11000/1020
CURRENT APPLICATION NUMBER: 1999-01-12
NUMBER OF SEQ ID NOS: 130
SOFTWARE: PastSEQ for Windows Version 3.0
SOFTWARE: PastSEQ for Windows Version 3.0
ILENGTH: 3097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-228-986-11
COUNTY: U.S.A.

IT: 80201-0185
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: TBM PC compatible
COMPUTER: TBM PC compatible
COMPUTER: TBM PC compatible
COMPUTER: TBM PC COMPUTER:
CLASSIFICATION NUMBER: US/08/579,777A
FILING DATE: 28-DEC-1995
CLASSIFICATION NUMBER: US/08/579,777A
APPLICATION NUMBER: US/08/579,777A
FILING DATE: 18 NOV-1993
TELECAMUNICATION INFORMATION:
TELECAMUNICATION INFORMATION:
TELECAMUNICATION NOWE SEQ. ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 2585 bases pairs
TYPE: nucleic acid
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Recent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHROMOSOME/SEGMENT: linkage group V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Neurospora crassa
STRAIN: wild-type 74-DR 23-1VA
DEVELOPMENTAL STAGE: Mycelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Align seg 1/1 to: US-08-579-777A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_block:
US-09-647-377-9 x US-08-579-777A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TYPE: DNA
; ORGANISM: Eucalyptus grandis
US-09-228-986-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IMMEDIATE SOURCE:
LIBRARY: lamda Zap CDNA
CLONE: gs-1
POSITION IN GENOME:
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Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: linear
MOLECULE TYPE: CDNA
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_documentation_block;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alignment_scores:
Quality:
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Gaps: 0 Percent Identity: 100.000

GC361-2

600 CGGCGCCAGCGGTTCGTCGATGGC 577

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/cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-642-846-1 + 107.50 159.57 0.3358
/cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-264-604-1 + 107.50 159.57 0.3358
/cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-488-6157B-12 + 107.00 164.24 0.1847
/cgn2_6/ptodata/2/ina/6A_COMB.seq:US-08-923-137-2 - 106.50 13.65 13.71
/cgn2_6/ptodata/2/ina/5A_COMB.seq:US-08-761-258-11 + 105.50 154.18 0.6707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1859 TCTCCATTCCGCCACAGAGGATCTAATTCAAGGGATTACAATTCCTTCAA 1908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .ValValGlyProSerAlaValGlyAlaSerProGlyAspLysLysSerL 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 8, Application US/08441139
Patent No. 5772345
GENERAL INFORMATION:
APPLICANT: Wittury, Dr. Karl D.
APPLICANT: Robinson, Anne S.
TITLE OF INVENTION: METHODS FOR INCREASING SECRETION OF TITLE OF INVENTION: RECOMBINANTLY EXPRESSED PROTEINS NUMBER OF SEQUENCES: 20
CORRESPONDENCE ADDRESS:
ADDRESSEE: SCULLY, SCOTT, MURPHY & PRESSER
                                                                                                                                                        seq_name: /cgn2_6/ptodata/2/ina/5A_COMB.seq:US-08-441-139-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps: 31
Percent Identity: 28.278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOUTHWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/441,139
FILING DATE: 15-MAY-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/089,997
FILING DATE: 06-UUL-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Align seg 1/1 to: US-08-441-139-8 from: 1 to: 6030
                                                                                                                                                                                                                                                                                                                                                                                                                                                         E: SCULLY, SCOTT, MURPHY & PRESSER 400 Garden City Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Didiglio, Frank S.
REGIETRATION NUMBER: 31,346
REPERENCE/DOCKET NUMBER: 8646
TELECOMMUNICATION INFORMATION:
TELEPHONE: 516-742-433
TELEFAX: 516-742-436
TELEFAX: 230 901 SANS UR
INFORMATION FOR SEQ ID NO: 8:
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US-09-647-377-9 x US-08-441-139-8
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MEDIUM TYPE: Floppy disk
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CITY: Garden City
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                                                                                                                                                                                                                 seq_documentation_block:
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UCATION:
US-08-441-139-8
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STATE: NY
COUNTRY:
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1812
58750
68750
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68750
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71989
11601
                                                                                                                                                                                                            software, version 4.5,
                     out_format : pfs
                     OM of: US-09-647-377-9 to: Issued_Patents_NA:*
                                                                                                                  About: Results were produced by the GenCore Copyright (c) 1993-2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query: US-09-647-377-9
Query length: 870
Database: Issued_Patents_Na:*
Database sequences: 383533
Database length: 122816752
Search time (sec): 55.100000
                                                                         Date: Jul 8, 2002 12:52 PM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Search information block:
                                                                                                                                                                                                 Command line parameters:
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1909	TACCTTAGAACCTCCTGCGATATTTCAGCAGGGACACAAACATCGTGCCT	1958
38 1959	ysasnlyssermetargGly ::    ::    :::      CTAATTCATCATCATAGTTTCAGTTCACAAGGTAATAATAACGGAGGT	44 2008
45	LysLysLysSerIlePheGluThrTyrMetSerLysGluAspValSerGl :::	61 2058
61 2059	uGlyLeuLysArgGlyThrLeuIleGlnGlyValLeuArgIleAsnProL   ::::::	78 2108
78	ystysPheHisGlualaPheIleProSerProAspGlyAspArg   ::: :::   :::::	92 2155
93	ASpIlePhelleAspGlyValValAlaargAsnargAlaLeuAsnGlyAs [	109 2205
109	pLeuValValValLysLeuLeuProGluAspGlnTrpLysAlaValL 	125 2255
125 2256	ysProGluSerAsnAspLysGluIleGluAlaThrTyrGluAlaAsp 	140 2305
141 2306	IleProGluGluGlyCysGlyHisHisProLeuGlnGlnSerArgLy	156 2355
156 2356	sGlyTrpSerGlyProaspValIleIleGluAlaGlnPheAspaspSerA ::: ::: :: ::        TGCTGCAACAACAATTTTCTATCTTCTCCCTCCTCGTCTGATTGGC	173 2405
173 2406	spSerGluAspArgHisGlyAsnThrSerGlyLeuVal	185 2455
186 2456	AspGlyValLysLysLeuSerIleSerThrProAspArgGlyLysGluAs ::: ::::::::::::::::::::::::::::::::	202 2505
202	pSerSerThrProValMetLysAspGluAsnThrProlleP	216 2552
216 2553	roGlnAspThrArgGlyLeuSerGluLysSerleuGlnLys ::: :::::::::: AAGTTGAAGGTCAGTCATTGTTATTAGTTGAAGAAGAAAATCAACGAT	229 2602
2603	SeralaLysvalvalTyrIleLeuGluLysLy :::	240 2652
240 2653	SHisSerargalaAlaThrGlyTleLeuLysLeuLeuAlaA ::::: :::::::::::::::::::::::::::::	254 2702
254 2703	splysasnSeraspleuPheLysysTyralaleu ::	265 2752
266 2753	PheSerProSerAspHisArgValProArgIleTyrValProLeulysAs	282 2802
282	pcysproglnaspPhemetThratgProLysaspPhealaasnThrLeuP:::    :::	299 2852

299	helleCysArgilelleAspTrpLysGluAspCysAsnPhealaLeuGly	315 2902
316	GlnLeuAlaLysSerLeuGlyGlnAlaGlyGluIleGluProGluThrGl    ::::::::      ::   ATTTTAGTTTCCGAACTTGGAGATATTCACGATCCTGATACTGAAATTGA	332 2952
332	yrGlyVa	349 2990
349		359
360	proproaspgluValglyLysa  ::::::::   \CGGCTGAAAGTCTAGAATATA	373 3090
373	<pre>/silePheThrIleAspProSerThrAla       ;:   ::: ATATCTTTGCAATTTCC</pre>	388
389	AspaspalaLeualaCysArgargLeuThra. :::        GaaTTTGCCTTACATGTCAGGAATAACGGAA.	402
403	sIleAlaAspvalSe  ::::::      ::  GTTGTTGATGTGA	419
419	rSerLeuAspLysValAlaalaGluArgAlaThrSerValTyrLeuValG      :::   :::   ::     CTCTGTTGATAGGGGGGGGAAAAAAGAGGTCCTCTGCGGGTGTTCATGCCAC	436
436	lleucysGluGluLeuC ::: ::	452 3322
453 3323	LeuasnProMetThraspLysLeuThrPheSerValIleTrpLysLeuTh	3372
469	rProGluGlyLyslleLeuGluGluTrpPheGlyArgThrllelleA :::	485 3422
485 3423	hrLysLeuSerTyrAspHisAlaGlnSerMetIl	501 3454
502 3455	ProThrGluLysIleProGluGluGluLeuProProIleSerProGlui ::	518 348(
518	rValGluGluValHisGlnAlaValLeuAs :::::    :::: CCTCTCTACTGTACAGGAA	535 3515
535 3516	ysGlnLeuArgArgGlnArgPheValAspGlyAlaLu 	550 356
551 3566	GlnLeuLysLeuAlaPheThrLeuAspHisGluThrGlyLeuProGlnGl     :::    :::	567 3612
567	yCysHisIleTyrGluTyrArgAspSerAsnLysLeuValGluGluPheM :::    ::: CTTGAACATCCTGGATAGACTTTAGGCTTTGTTGTAATTAAT	584 3662

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4283 CATGGAGATCAACTACCTTTGATCAAAGCTGAGTTTGAT.....GGTAC 4326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4045 CCACGATACTCCATACACCGAA.....GATATGGAAGCTTTGA 4082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :::||| ||| :: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;: ||| ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3763 GTCATTTAGAAAAGAAAATTCAAAATTTTGGTTACAATTTTGATACCAATA 3812
                                                                                                                                                                                                                                                                                                                  3863 .....AGAGTCGGAATTGAAATTTACTGTTTAAAACCAT 3897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .....SerGlyProLeuGluSerGluAlaMetValMetGlyValLeuA 777
                              717 u......GlyTyrSerGluGlnProAspValGluProAspThrLeuG 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  777 snGlnAlaPheAspValLeuValLeuArgPheGlyValGlnLysArgIle 793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             794 TyrCysAsnAlaLeuAlaLeuArgSerTyrSerPheGlnLysValGlyLy 810
                                                                                                                                                                                                                                                                               634 erAlaGlyAlaLeuAsnLysSerLeuThrLysThrPheGlyAspAspLys 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   667 tGlnMetAlaLeuTyrPheCysSerGlyMetLeuGlnAspGlnGluGlnP 684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              684 heargHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSerPro 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            701 IleArgArgPheAlaAspValIleValHisArgLeuLeuAlaAlaAlaLe 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                731 lnLysGlnAlaAspHisCysAsnAspArgArgMetAlaSerLysArgVal 747
                                                                                                                                                                                                                                                                                                                                                                          651 TyrserLeuAlaArgLysGluValLeuThrAsnMetTyrSerArgProMe 667
584 etLeuLeuAlaAsnMetAlaValAlaHisLysIlePheArgThrPhePro 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-08-936-165A-186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           748 GlnGluLeuSerIleGlyLeuPhePheAlaValLeuValLysGlu....
                                                                                                                                                                                         617 rAspLeuValGluPheCysAspGlnMetGlyLeuProMetAspValSerS
                                                                                             601 GluGlnAlaLeuLeuArgArgHisProProProGlnThrLysMetLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4327 CAATCGTGTCTTGGAATTGCATTGGCAGCCC 4357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           810 sLysProGluLeuThrLeuValTrpGluPro 820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 186, Application US/08936165A Patent No. 6348582 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Black, Michael
Burnham, Martin
Hodgson, John
Knowles, David
Lonetto, Michael
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Pratt, Julie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
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APPLICANT:
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TITLE OF INVENTION: No. 6348582el Prokaryotic Polynucleotides, TITLE OF INVENTION: Polypeptides and Their Uses NUMBER OF SEQUENCES: 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          446 LeucysGluGluLeuCysSerLeuAsnProMetThrAspLysLeuThrPh 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      479 heGlyArgThrIleIleArgSerCysThrLysLeuSerTyrAspHisAla 495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         462 eSerVallleTrpLysLeuThrProGluGlyLysIleLeuGluGluTrpP 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 496 GlnSerMetIleGluAsnProThrGluLysIlePro.....GluGluGl 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   510 uLeuProProlleSerProGluHisSerValGluGluValHisGlnAlaV 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58 AAGCTGTCGCATGGAAATCGATGCTAGTGGTCGCGTTGTTAAACATGAAA 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTAAGCAATGTATTTGTTCATTAAATCCTCATGTTGATGTTTAACGTT 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           199 ATATAAAGAAATTACGCCTATGTTAGATTTAGCACAA.....
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps: 13
Percent Identity: 26.286
                                                                                                                                                                                                                                                                              COMPUTER READBALE FORM:
MEDIUM TYPE: Diskette
COMPUTER: In BM Compatible
COMPUTER: In STATE
APPLICATION NUMBER: US 0/027, 032
APPLICATION NUMBER: GO/027, 032
FILING DATE: 24-SEP-1996
ATTORNEY/AGENT INFORMATION:
NAME: Gimmi, Edward R
REGISTRATION NUMBER: 38,891
                                                                                                                                             ADDRESSEE: SmithKline Beecham Corporation STREET: 709 Swedeland Road CITY: King of Prussia STATE: PA COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P50549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: US-08-936-165A-186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
US-09-647-377-9 x US-08-936-165A-186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: PSI
TELECOMMUNICATION INFORMATION:
TELEPHONE: 610-270-4478
TELEFAX: 610-270-5090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO: 186:
SEQUENCE CHARACTERISTICS:
LENGTH: 1348 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                     Rosenberg, Martin
Ward, Judith
Reichard, Richard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genomic DNA
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1.346
57.429
                                                                                                      NUMBER OF SEQUENCES: 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                            COUNTRY: USA
ZIP: 19406-0939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ratio:
Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; MOLECULE TYPE:
US-08-936-165A-186
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                                               APPLICANT:
                       APPLICANT:
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527 alLeuAsnLeuHisSerIleAlaLysGlnLeuArgArgGlnArgPheVal 543
                                         236 .....GATTTATCTAATCGNTTGATTCAAATGAGAAACGACGTGGGGTG 280
                                                                                              544 AspGlyAlaLeuArgLeuAspGlnLeuLysLeuAlaPheThrLeuAspHi 560
                                                                                                                                        281 AAATCGATTTTGGATATTAGNGAAGCAAAAGTA......TTAGTTAA 321
                                                                                                                                                                                                                           ::!!! :::!!!!:::!!!
322 CGAAGTCGGGTATACCAACAGATGTTCAATTAAGACAACGTGGCGAGGGT 371
                                                                                                                                                                                                                                                                                          AsnLysLeuValGluGluPheMetLeuLeuAlaAsnMetAlaValAlaHi 593
                                                                                                                                                                                                                                                                                                                     593 sLysIlePheArgThrPheProGluGlnAlaLeuLeuArgArgHisProP 610
                                                                                                                                                                                                                                                                                                                                                                                                                                     422 ACAT...TITAGTAAGTTAAATGTACCTTTTATTTACCGAGTGCATGAGC 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       610 roProGlnThrLysMetLeuSerAspLeuValGluPheCysAspGlnMet 626
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyLeuProMetAspValSerSerAlaGlyAlaLeuAsnLysSerLeuTh 643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             660 hrAsnMetTyrSerArgProMetGlnMetAlaLeuTyrPheCysSerGly\ 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         580 AAGAAGTAGAAGGTCGACCTGAACAATGGTCATT.....TCAACAATG 623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MetLeuGlnAspGlnGluGln.....PheArgHi 686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sTyrAlaLeuAsnValProLeuTyrThrHisPheThrSerProlleArgA 703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         703 rgPheAlaAspValIleValHisArgLeuLeuAlaAlaAlaLeuGlyTyr 719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 724 GITATCCTGATTTAACAGNICATCGTTAATCCGTAAGTATTTAATTGAG 773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   720 SerGluGlnProAspValGlu.....ProAspThrLeuGlnLy 732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          732 sGlnAlaAspHisCysAsnAspArgArgMet.....AlaSerL 745
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824 GTTAGCTGAACATACTTCTAAACGTGAACGTCGTGGTATTGAGGCAGAAC 873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                745 ysArgValGlnGluLeuSerIleGlyLeuPhePheAlaValLeuValLys 761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          874 GIGATACTGATGAATTGAAAAAGCAGAATAT.....ATGATTCAA 914
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-327-487A-2
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; Sequence 2. Application US/09327487A; Patent No. 6353847; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: MATSUKAWA, Hirokazu
APPLICANT: OKA, Osamu
APPLICANT: FUJITA, TUYOSI
                                                                                                                                                                                                                                                                                          577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     627
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2679 CTTCCCCTGGCCCGCCGCACTCCCC.....GTCCCCCCTGCCCGA 2636
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2338 .....GTCTCCCCGGAAGGA......GCCTTTTGCGGGAGGAC 2307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                350 LeuGluCysLeuProGlnSerLeuProTrpThrIleProProAspGluVa 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               400 GlyThrPheGluValGlyValHisIleAlaAspValSerTyrPheValPr 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           416 oGluGlySerSerLeuAspLysValAlaAlaGluArgAlaThrSerValT 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      366 lGlyLysArgArgAspLeuArgLysAspCysIlePheThrIleAspProS 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      433 yrLeuValGlnLysValValProMetLeuProArgLeuLeuCysGluGlu 449
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  482 rIlelleArg...SerCysThrLysLeuSerTyrAspHisAlaGlnSerM 498
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerProGluHisSerValGluGluValHisGlnAlaValLeuAsnLeuHi 531
HAPPLICANT: MIYAZAKI, Kentaro
TITLE OF INVENTION: AMMONIA ELIMINATION LIQUID REAGENT
FILE REPERENCE: 028022-013
CURRENT APPLICATION WUMBER: U5/09/327,487A
CURRENT FILING DATE: 1999-06-08
FROR APPLICATION NUMBER: U7 10-176643
PRIOR FILING DATE: 1999-06-09
NUMBER OF SEQ ID NOS: 7
SOFTWARE: PATENTIN Ver: 2.0
SEQ ID NO 2
LENGTH: 2872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      450 Leu..CysSerLeuAsnProMetThrAspLysLeuThrPheSerValIle
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                                                                                                                                                                                                                                                                                                                                                                                                               Length: 513
Gaps: 24
Percent Identity: 24.951
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alignment_block:
US-09-647-377-9 x US-09-327-487A-2/rev
                                                                                                                                                                                                                                TYPE: DNA ORGANISM: Thermus aquaticus
                                                                                                                                                                                                                                                                                                                                                                                                           235.00
0.955
47.953
                                                                                                                                                                                                                                                                                      ) NAME/KEY: CDS
; LOCATION: (180)...(1460)
US-09-327-487A-2
                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ratio:
                                                                                                                                                                                                                                                                                                                                                                                          alignment_scores:
                                                                                                                                                                                                                                                                   FEATURE:
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531 2231	sSerileAlaLysGlnLeuArgArgGlnArgPheValAspGlyAlaLeuA:.	548 2182
548	rgLeuAspGlnLeuLysLeuAlaPheThrLeuAspHisGlu	561 2132
562 2131	ThrGlyLeuProGlnGlyCysHislleTyrGluTyrArgAspSerAs	577 2103
577 2102	nIysLeuValGluGluPheMetLeuLeuAlaAsnMetAlaValAlaHisL:	594 2056
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611	LeuSerAspLeuValGluPheCysAspGl	627
2041	9	2040
627 2039	yLeuProMetAspValSerSerAlaGlyAlaLeuAsnLysSerLeuThrL	644 1999
644	ysThrPheGlyAspAspLysTyrSerLeuAlaArgLysGluValLeu:::::     ::::::::     gGGTGGAGGGGAGGCCTCGCCGCATGTGGGGCGCAGGGAAGACCCTG	659 1949
099		919
1948	AAGAGGCGCAGCTCAAGGCCGTCCCGCCCCC	1916
676 1915	yMetLeuGlnAspGlnGluGlnPheArgHisTyrAlaLeuAsnValProL     :::   :::::     	693 1894
693	euTyrThrHisPheThrSerProI        :::::  rcTACGCCCAGGTGACGAGGCCCT	709
71		726 1797
72		741
741	rgMetAlaSerLysArgValGlnGluLeuSerIleGlyLeuPhePhe	756
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757	ATGGAAAAGGGCTACGAGGCCCGGGCGTCTGGTGGAGAGCCGGGGGG	762 1647
762		762
1646	6 ACAGGGGGTCTTCCTCCTCCGGAGCTCGGGCTTTCCGCCCAGGTGGCCC	1597
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791		795

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seq_documentation_block:
; Sequence 37, Application Us/09268347
; Patent No. 6331018.
; GRNERAL INFORMATION:
; APPLICANT: LOSMOTC, Sheena M.
; TITLE OF INVENTION: RECOMBINANT HAEMOPHILUS INFLUENZAE ADHESIN PROTEINS
; TITLE OF INVENTION NUBBER: US/09/268,347
; CURRENT PELLING DATE: 1999-03-16
; NUMBER OF SEQ ID NOS: 54
; SEG ID NO 37
; LENGTH: 1812
; TYPE: DNA
; ORGANISM: Haemophilus influenzae
US-09-268-347-37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         634 eralaglyalaLeuAsnLysSerLeuThrLys.....ThrPheGlyAsp 648
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1496 CCGTGGCTTTTGCCACGGCGGGGCCCCAAACGTTTTCAGTCCATGTGCT 1447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               593 ..HisLys......IlePheArgThrPheProGluGln... 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          603 .....AlaLeuLeuArgArgHisProProProGlnThrLysMetLeuSe 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              310 CAAACTGAACTGGAGGAGGTTAT.....TCAGTAGAAACTTAGC 350
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                67 ....CTACATCTACCAAAGCTCGCATTCAATGGCGCAAAACCCATT 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           562 ThrGlyLeuProGlnGlyCysHisIleTyrGluTyrArgAspSerAsnLy 578
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length: 371
Gaps: 18
Percent Identity: 23.989
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                                                                               1446 GGATCAGGCCTGGCCGAACTCGCTGGTCTTAAGAAGC 1409
                                                         796 .....AsnAlaLeuAlgSer 802
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US-09-647-377-9 x US-09-268-347-37
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0.832
51.482
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Ratio:
Percent Similarity:
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649	AspLysTyrSerLeuAlaArgLysGluValLeuThrAsnMetTyrSerAr	665	
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465		465	
682	luGlnPheArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThr 	698 507	
508	SerProlleArgArgPheAlaAspvalIleValHisArgLeuLeuAlaAl             :::::   ::    TGGCCCATCGGCAATATTCAGATATGGTTAATCATCGTTAATCAAAGC	715	
715 558		730	
730	euGlnLysGlnAlaAspHisCysAsnAspArgArgMetAlaSerLysArg	746	
747	ValGinGluLeuSerIleGiyLeuPhePheAlaValLeuValLysGluSe::: :: ::	763	
763	rGlyProLeuGluSerGluAlaMetValMetGlyValLeuAsnGlnAlaP::::   :::   :::   ::::::::::::::::::	780	
780	heAspValLeuValLeuArgPheGlyValGlnLysArgIleTyrCysAsn::   ::   :::   :::   :	796	
797	AlaLeuAlaLeuArgSerTyrSerPheGlnLysValGlyLysLysProGl	813	
813	uLeuThrLeuValTrpGluProAspAspLeuGluGluG  ::     :::       :::	852 862	
826	lubroThrGlnGlnVallleThrIlePhe	835 912	
836 913		847 962	
847	ralaLeuLysTyr 851 : ::     TCCAATATGTTAC 975		
sed_name	_name: /cgn2_6/ptodata/2/ina/5A_COMB.seq:US-08-257-073-10		
seq_docum  Sequence  Sequence  GENERA  APPI  APP	"Sequence 10, Application US/08257073 Sequence 10, Application US/08257073 Patent No. 5766597 GENERAL INFORMATION: APPLICANT: Paoletti, Enzo APPLICANT: Tine, John A. TITLE OF INVENTION: MALARIA RECOMBINANT POXVIRUS VACCINE NUMBER OF SEQUENCES: 143 CORRESPONDENCE ADDRESS: ADDRESSEE: Curtis, Morris & Safford, P.C. STREET: 530 Fifth Avenue, 25th Floor CITY: New York STATE: New York	ы	
	UNTRY: INTER STATES OF AMERICA		

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1387 ATGAATCCTGATACTAAAGAAAAATTAATGAAAAATTATT...ACAGA 1433
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|1534 GAAGATTATGAAAAAGGATTATGAAGAATTACTTGAAAATT 1583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1584 TTATGAAATGAAATTTAATAATAATTTTGACAAAGATGTCGTAGATAAAA 1633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ::: :::|||::: ::||
1684 AAATITICAICCTCTAAIAAITCTGTAIATAATGTICAAAAATITAAAAAA 1733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88 oAspGlyAspArgAspIlePheIleAspGlyValValAlaArg..... 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      103 ..... AsnArgAlaLeuAsnGlyAspLeuValValValLysLeuLeuPro 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        118 GluAspGlnTrpLysAlaValLysProGluSerAsn......129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130 .....AspLysG 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 132 lulleGluAlaThrTyrGluAlaAspIleProGluGluGlyCysGlyHis 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               149 ......HisProLeuGlnGlnSerArgLy 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75 IleAsnPro.....LysLysPheHisGluAlaPheIleProSerPr 88
COMPUTER READALE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: THE PC COMPATIBLE
COMPUTER: THE PC COMPATIBLE
SOFTWARE: PATENTIN PC-DOS/MS-DOS
SOFTWARE: PATENTIN PC-DOS/MS-DOS
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/257,073
FILING DATE: 09-JUN-1994
PRIOR APPLICATION NUMBER: US 08/075,783
FILING DATE: 11-JUN-1993
PRIOR APPLICATION NUMBER: US 07/652,305
FILING DATE: 18-MAR-1992
PRIOR APPLICATION NUMBER: US 07/672,183
FILING DATE: 20-MAR-1991
APPLICATION NUMBER: US 07/672,183
FILING DATE: 20-MAR-1991
APPLICATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 25,506
REFERENCE/DOCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length: 902
Gaps: 43
Percent Identity: 19.401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Align seg 1/1 to: US-08-257-073-10 from: 1 to: 5181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_block:
US-09-647-377-9 x US-08-257-073-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Quality: 124.50
Ratio: 0.310
milarity: 44.457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ratio:
Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_scores:
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Page 7

155 SGIYTEPSERGIYProAspValIIeIleGluAlaGlnPheAspAspS [111] [11] [11] [11] [11] [11] [11] [1	Asps 172	:::: GAAA 1783	yval 188 ::: TATA 1833	erth 205 :: CAGA 1847	(GIYL 222   1    GGAC 1897	euGlu 238 : :rGrA 1941	ispLy 255 :: :TAAG 1991	ohisa 272       car. 2040	279 NTTA 2088	irgpr 291 :: AAAGT 2138	rLeuP 299   AcAAC 2188	eugly 315     GGT 2226	ThrGl 332    3AAGA 2276	rGluV 349	spGlu 365     AAGAA 2343	Argly 374 :: TCACA 2393	paspa 391  ::: TGAAT 2434	heGlu 403	
	:	:::	eraspsergluaspargHisGlyAsnThrSerGlyLeuValaspG; ::    :::         aagattttaatCattatatatatttgaaaActgGcCTCGaaGCTG	LysLysLeuSerIleSerThrProAspArgGlyLysGluAspSer9             AAAAAATTA	rProvalMetLysaspGluasnThrProIleProGlnAspThrAr;  ::         agaaataaagagtagtgaaaacaaaattctagaaaaaatttaaa	euSerGluLysSerLeuGlnLysSerAlaLysValValTyrIleLv 	LysLysHisSerArgAlaAlaThrGlyIleLeuLysLeuLeuAla. 	SASNSETASPLEUPheLySLysTyrAlaLeuPheSerProSerAs; :::::::	rgValProArg11eTyrValPro	LeuLysaspCysProGlnaspPheMetThr          ATGTATTAAAAAAGAAGTAGATAAATTAAAAGAATTTATACCA	OLYSASPPhealaasn	helleCysArgllelleAspTrpLysGluAspCysAsnPheAlaL ::: CTTTAGTTGCAGCAAGCGAAACAACTGAAGATGGG	GInLeuAlaLysSerLeuGlyGInAlaGlyGluIleGluProGlu ::: ::: :::   :::          CACTCCACACACATTATCCCAATCAGGAGAAACAGAAGTAACA	uGlylleLeuThrGluTyrGlyValAspPheSerAspPheSerSe 	alLeuGluCysLeuProGlnSerLeuProTrpThrIleProProA ::::::         	ValGlylysargaspleu 	SASPCysIlePheThrIleAspProSerThrAlaArgAspLeuAs 	391 laLeuAlaCysArgArgLeuThrAspGlyThrPheGlu    ::: 2435 TTTTAACTAAATCATATATATGTCATAAA	

420	rleuāsplys423  :::   ::: ratggaccaaaaattattagaggtatataatcttactccagaagaaa 2536
424	ValAlaAlaGluArgAlaThrSerValTyrLeuValGlnLys 437
43	sGluGluLeuCysSerLeuAs 454
454	al :: TATATC
465	IleTrpLysLeuThrProGluGlyLysIleLeuGlu 476 :::
477	GluTrpPheGlyargTh 482       GAGCAAAAAAATAACTGGAACATCATCTACATCCAGTCCTGGAAATAC 2774
482	rileileargSerCysThrLysLeuSerTyrAspHisAlaGlnSerMeti 499   .::::::::::::::::::::::::::::::::::::
499	leGluAsnProThrGluLysIleProGluGluGluGluLeuProProIleSer 515 :::!
516 2875	ProGluHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSe 532
532	rileAlaLysGlnLeuArgArgGlnArgPheValAspGlyAlaLeuArgL 549
549 2954	uAspHi   :: TGGAAA
566	GlnG ::: AATC
582	upheMetLeuLeualaasnm
596 3071	heArgThrPheP ::::: TCAAACAATTCG
613 3094	ThrLysMetLeuSerAspLeuValGlu
622	TGAAATTAAAAA
634	eralagiyalaleuasnlysSerleuThrlys 644 :: ATAAATATAAAATTAAAATTAGATAGTTATTTAATAAGAAAAAA 3237
645 3238	ThrPheGlyaspasplysTyrSerLeuAlaArgysGl 657 :::         ::::
657	uValLeuThrAsnMetTyrSerArgProMetGl

alignment\_scores

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62316	CAGGCCGCGGAGGCGCATGAGCCTTCCTGGACGTTTGCAGTATA	62359
492	leGluAsnProThrGluLysIlePr	508
62360	   AGATTTTATGACACAGGAGCAAGCGA	62409
508	uGluGluLeuProProIleSerProGluHis	519 62459
519	erValGluGluValHisGlnAla	526 62509
527	ValLeuAsnLeuHisSerIlealaLysGlnLeuArgAr :::         ::: ::: :::           :::	539 62559
53 256	nargPheValhapGlyAlaLeuArgLeuAspGlnLe        :::  ACGCTTCGCGGTCAGTCGAGA	556 62594
5 5	ThrLeuAspHisGluThrGlyLeuP ::: ::::::::::::: AGGGGGAGTACTCGTCGGCCATTC	572 62626
573	\snLysLeuValGluGluPheMetLeuLeuAlaAsn	589
62626		62626
589	laValAlaHisLysIlePheArgThrPheProGluGl	909
62626		62626
606	ArgHisProProFinThrLysMetLeuSerAspLeuVal0          :: 	622 62647
623	ysaspGlnMetGlyLeuProMetAsp 	639
63	sserieuThrLvsThrPheGlvAspAspLvsTvrSerLe	9
	CAAGCTGGTGAACCGTGTTAACGTCACGCGCCATCGACCTGCTGCGC	7
656	ysGluValLeuThrAsnMetTyrSerArgProMetGlnMetAlaLeuTyr    :::::::     CGGAAATACAGGGCACGGTGGACGAGCTGGTGGAT	672
673	PheCysSerGlyMetLeuGlnA.	6281
686	STyrAlaLeuAsnValProLeuT         TTACGCGGAGGGAATCCCGATGC	694
69		710
71	ArgLeuLeuAlaAlaLeuGlyTyrSerGluGInProAspValGluP:	727
727	oAspThr	729
62947		62
729		729

Align seg 1/1 to: US-09-568-102-1 from: 1 to: 68750

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62997	730	743	754 63135	762 63185	778	785 63285	802 63329	818 63355	835 63387	sed_nam	seq_docum sequency sequency Sequency APPLIC APPLIC APPLIC APPLIC APPLIC APPLIC CURREN CURREN PRIOR PR	alignme	alignme

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60907 GGTGGGGATGGCCGTTGCGCAAGAAACCGTGGCGGCGGCGGGGGTC...T 60953
                                        60857 AGGCCCAGGGCCTGCCGGCGCTCGACTGGGGGCATGTTCACGGA 60906
                                                                                                                                                                                                             60954 CTCGCGGGATGCGGGGC.....ATCACC 60976
                                                                                                                                                                                                                                                                                                                60977 CCCGATGAGGGTCTGTCAGCTCTGGCGCGTTGCTCGAGGGTGATCGCGT 61026
                                                                                                                                                                                                                                                                                                                                                                                                           61074 ACCCGGCAACAGCGGCCTCACGGAGGTTGTCGCGGCTGGTGACCACGCAG 61123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61124 CGCGCGGTCGCTGATCGGACCGCCGGGGATCGGGACCTGCTCGAACAGCT 61173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61174 TGCGTCGCCTGAGCCGAGCGCGGGCGGGCTGCTGCAGACGTCGTGC 61223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61274 GATGCCCCGCTCTCGAGCATGGGCATGGACTCGCTGATGAGCCTGGAGCT 61323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61324 GCGCAACCGCATCGAGGCTGCGCTGGGCGTCGCCGCCCTGCG 61373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61424 GCCCTCGTCCGGCTTGGCGGCGGGTCGGACGACGAATCGACGGC 61473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61632 ACGATCGCAGCCTCGCCTCCGAGGACGCGCCTGGTAAGAAGTACGTCCAA 61681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98 yValValAlaArgAsnArgAlaLeuAsnGly.....AspLeuValV 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    112 alValLysLeu.....LeuProGluAspGlnTrpLysAla 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    146 ysGlyHisHisProLeuGlnGlnSerArgLysGlyTrpSerGlyProAsp 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124 ValLysProGluSerAsn......129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130 .AspLysGluIleGluAlaThrTyrGluAlaAspIleProGluGluGlyC 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               163 ValIleIleGluAlaGlnPheAspAspSerAspSerGluAspArgHisGl 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          179 yAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIleSerThrP 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196 roAspArgGlyLysGluAspSerSerThrProValMetLysAspGlu... 211
                                                                                        22 lValGlyProSerAlaValGlyAlaSerProGlyAspLysLysSerLysA 39
                                                                                                                                                                                                                                                                                 56 LysGluAspValSerGluGlyLeuLysArg.....GlyThrLeuIl 69
                                                                                                                                                                                                                                                                                                                                                                          69 eGln...GlyValLeuArglleAsnProLysLysPheHisGluAlaPheI 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 212 ......AsnThrProlleProGlnAspThrArgGl 221
11 ArgSerProGlyThrProArg......GlyValSerSerVa 22
                                                                                                                                                                                      39 snLysSerMetArgGlyLysLysLysSerIlePheGluThrTyrMetSer 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88 .....ProAspGlyAspArgAspIlePheIleAspGl 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         221 yLeuSerGluLysSerLeuGlnLysSerAlaLysValValTyrIleLeuG 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     238 luLysLysHisSerArgAlaAlaThrGlyIleLeuLysLeuLeuAlaAsp 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85 leProSer......87
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255	LysAsnSerAspLeuPheLysLysTyrAlaLeuPheSerProSerAspHi	271
1682	GAGGCGGCCTCGCTGATCAGCACTATGCA	61711
271	sArgValProArgIleTyrValProLeuLysAspCysProGlnAspPheM	288
1712		61720
288	Ω	304
1721	TAGT	61732
305	AspTrpLysGluAspCysAsnPheAlaLeuGly	315
1733	GGGTTCAGCCTGGGTGTCCGGGTTCGTCATGGGGACAGCCGTGGAGCTCGC	61782
316	GlnLeuAlaLysS	320
1783	TGGG	61832
320	erLeuGlyGlnAlaGlyGluIleGluProGluThrGluGlyIleLeuThr	336
1833	GCTTGATCTTCTTCAGAGATCACCCGGAGATGGAGACGGATATA	61879
337	GluTyrGlyValAspPheSerAspPhe.SerSerGluValLeuG	351
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351	luCysLeuPro	354
51915	::     CGTGGGATCCACCCAACAAGTCCAGGCCGATGCTCGCGCAGACAAGGTCA	61964
355	GINSerLeuProTrpThrIleProProAspGluValGlyLysArgArgAs	371
51965	TCACAGACACCATGGTGGCTCCGGCCCCCGGGGACTCGAAGGAGCCGCCC	62014
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52059	TGTGATCGTGCCTCCGAGCGACGTTCAGGATCTACAGTCTC	65099
405	GlyValHisIleAlaAspValSerTyrPheValProGluGlySerSerLe	421
52100		62149
421		438
62150	CTCGTCGATCGAGGGCGCGGGATCATGC	62183
438	alValProMetLeuProArgLeuLeuCysGluGluLeuCysSerLeuAsn	454
62184		62233
455	ProMetThrAspLysLeuThrPheSerValIleTrpLysLeuThrProGl	471
62234	CCCGCGTTCGAG	62265
471		481
62266	cressesesesesasarssarissasesesesesesesesesesesesesesesesesese	62315
482		491
62316	CAGGCCGCGGAGCCCATGAGCCTTCCTGGACGTTTGCAGTATA	62359
492	TyrasphisalaGlnSerMetIleGluAsnProThrGluLysIleProGl	508
113600	<b>したび タイプ かいかい かいかい かいかい かいかい かいかい かいかい かいかい かい</b>	

508	UGluGluLeuProProIleSerProGluHiss :::::    :::::    ::: :	519 62459
519	GluGluValHisGlnAla	526
09	TTCTACTGGGATGAAG	62209
527	ValLeuAsnLeuHiSSerIleAlaLysGlnLeuArgAr	539
62510	CGCTCCTGGGTCCTCACCCGATACCACGACGTGTCGGCGGTGTTCGGCG	62559
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62560	:	62594
556	7::	7
62595	CGAGCGCGGAGTACTCGTCGGCCATTCCCGGAG	62626
573	${\tt TyrArgAspSerAsnLysLeuValGluGluPheMetLeuLeuAlaAsnMe}$	589
62626		62626
589	ysilePheArgThrPheProG	909
62626		62626
909	ProProProGlnT	0
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623	CysAspGlnMetGlyLeuProMetAspValSerSerAlaGlyAlaLeuAs ::::::::::::::::::::::::::::::::::::	639
63	LysSerLeuThrLysThrPheGlyAspA	959
62689	:::::: :::    :rcgrcaacccgrcgrttacgrcacgcgccarcgacctgc1	62738
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673	PheCysSerGlyMetLeuGlnAspGlnGluGlnPheArgHi	989
62774	CAAGAGGAGTTCGACGTTGT	62811
989	STyrAlaLeuAsnValProLeuTyr	4
62812	TTACCCGGAGGGAATCCCGATGCGCGCGATCAGCGCTCTGTTGAAGGTTC	62861
695	ThrHisPheThrSerProlleArgArgPheAlaAspVallleValHis	710
62862	CGGCCGAGTGTGACGAGGAAGTTCCGTCGCTTCGGCTTCGGCG	62902
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62903	ACTGCGCGCGCGCTGGGTTTGGTGCCCCCAGTCGATGA	62946
727	9pThr	729
62947	GGAGACCAAGACCCTGGTCGCGTCCGTCACCGAGGGGCTCGCGCTGCTCC	62
729		729
62997	ATGACGICCICGAIGAGCGCCGCAGGAACCCGCICGAAAAIGACGICIIG	63046
730	Met	743
63047	GAGGCCGACGGCAC	63087
743	aSerLysArgValGlnGluLeuSerIleGly	753

```
Sequence 1. Application US/09567969
Patent No. 6355457
GENERAL INFORMATION:
APPLICANT: Schupp, Thomas
APPLICANT: Schupp, Thomas
APPLICANT: Ligon, James
APPLICANT: Ligon, James
APPLICANT: Zirkle, Ross
APPLICANT: Zirkle, Ross
APPLICANT: Goerlach, Joern
TITLE OF INVENTION: GENES FOR THE BIOSYNTHESIS OF EPOTHILONES
FILE REPERENCE: 4-30582A
CURRENT APPLICATION NUMBER: 09/335,409
PRIOR PELING DATE: 1999-06-17
NUMBER OF SEQ ID NOS: 30
SOUTHWARE: Patentin Ver. 2.0
SEQ ID NO: 200
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                                                                                                                             762 GluSerGlyProLeuGluSerGluAlaMetValMetGlyValLeuAsnGl 778
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                                                                                                                                                                                                                                                                          785 euargPheGlyValGlnLysArgIleTyrCysAsnAlaLeuAlaLeuArg 801
                                                                                                                                                                                                                                                                                                                                                                                                                                 818 pGluProAspAspLeuGluGluGluBroThrGlnGlnValIleThrIleP 835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .......GlyValSerSerVa 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-567-969-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps: 46
Percent Identity: 18.084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       from: 1 to: 68750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63355 GATCCCGAGCGCCCTGAGAGATGGG...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Align seg 1/1 to: US-09-567-969-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; TYPE: DNA
; ORGANISM: Sorangium cellulosum
US-09-567-969-1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63387 TCTCCAGGCCAGACGTG 63403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11 ArgSerProGlyThrProArg..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       835 heSerLeuValAspVal 840
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0.292
40.665
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Ratio:
Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alignment_scores:
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22 lValGlyProSerAlaValGlyAlaSerProGlyAspLysLysSerLysA 39

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60977 CCCGATGAGGGTCTGTCAGCTCTGGCGCGCTTGCTCGAGGGTGATCGCGT 61026
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61632 ACGATCGCAGCCTCGCTCGAGGACGCGCCTGGTAAGAAGTACGTCCAA 61681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98 yValValAlaArgAsnArgAlaLeuAsnGly.....AspLeuValV 112
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        163 ValilelleGluAlaGlnPheAspAspSerAspSerGluAspArgHisGl 179
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519		526
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20 2		, ,
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785 euargpheGlyValGlnLysargIleTyrCysasnalaLeualaLeuarg 801 ::      ::	85
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seq_name: /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-09-568-480-1	61224
seq_documentation_block:	61274
; Patent No. 6355458 ; GENERAL INFORMATION:	130
; APPLICANT: Schupp, Thomas ; APPLICANT: Ligon, James	61324
; APPLICANT: Molnar, Istvan ; APPLICANT: Zirkle, Ross	146
; APPLICANT: Cyr, Devon ; APPLICANT: Goerlach, Joern	61374
; TITLE OF INVENTION: GENES FOR THE BIOSYNTHESIS OF EPOTHILONES ; FILE REFERENCE: 4-30582A	163
; CURRENT APPLICATION NUMBER: US/09/568,480 ; CURRENT FILING DATE: 2000-05-10	61424
; PRIOR APPLICATION NUMBER: 09/335,409 ; PRIOR FILING DATE: 1999-06-17	179
; NUMBER OF SEQ ID NOS: 30 ; SOFTWARE: PatentIn Ver. 2.0	61474
; SEQ ID NO 1 ; LENGTH: 68750	196
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Quality: 121.50 Length: 1023 Ratio: 0.292 Percent Similarity: 40.665 Percent Similarity: 40.665	221
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	61682
22 lvalGlyProSerAlaValGlyAlaSerProGlyAspLysLysSerLysA 39	271
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60954 CTCGCGGGATGCGGGGCATCACC 60976	61721

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61027	9 eGlnGlyValLeuArglleAsnProLySLysPheHisGluAlaPheI 	85
	Ser	87
61074	: : :   ACCCGGCAACAGCGGCCTCACGGAGGTTGTCGCGGCTGGTGACCACGC	61123
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61224	alvallysteu	123 61273
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61274	GATGCCCCGCTCTCGAGCATGGGCATGGACTCGCTGATGAGCCTGG	61323
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61324	GCGCAACGCATCGAGGCTGGGCTTGGCCGCGCGCCTGCAGCCTTGG	61373
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61374	GGTGGACGTACCCAACGGTAGCAGCGATAACGCC	61423
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61424	- ()	61473
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61505	TITCGTCGTCGTCGCGGGGCT	61531
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355 61965	GInSerLeuproTrpThrIleProProAspGluValGlyLysArgArgAs :::::             ::         TCACAGACACCATGGTGGCTCGGCCCCCGGGGACTCGAAGGAGCCGCCC	371 62014
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519 62460	erValGluGluValHisGlnAla	526 62509
527	ValLeuAsnLeuHisSerIleAlaLysGlnLeuArgAr :::    :::::::::::    	539
5 7		26

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62627	CICAGCGATATGAAGAAGTAC	62647
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62648	3GAG	62
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67	LeuGlnAs	686
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801 63328 818 63354 835 63386	CONES			22 60906	39 60953	55 60976	69 61026	85
785 euArgPheclyValGlnLySargileTyrCysAsnalaLeuAlaLeuArg 63285 TGCTTTCGCAGGCAGGACCTGGAGTATGCGGGGATCGATC	entation_block:  1. Application US/09568486  INFORMATION:  ANT: Schupp, Thomas  ANT: Schupp, Thomas  ANT: Ligon, James  ANT: Cyr, Devon  ANT:	Lignment_scores:  Quality: 121.50	Align seg 1/1 to: US-09-568-486-1 from: 1 to: 68750	11 ArgSerProdlyThrProArg	22 IValGlyProSerAlaValGlyAlaSerProGlyAspLysSerLysA	39 snLysSerMetArgGlyLysLysLysExSerIlePheGluThrTyrMetSer ::::::	56 LysGluAspValSerGluGlyLeuLysArgGlyThrLeuIl :: 60977 CCCGATGAGGGTCTGTGGCTCTGGCGCTTGCTCGAGGGTGATCGCT	69 eGlnGlyValLeuArgIleAsnProLysLysPheHisGluAlaPheI :

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61682	· U	61711
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61783	Ĕ	61832
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556 62595	6 heThrLeuAspHisGluThrGlyLeuProGlnGlyCysHisIleTyrGlu::::::::::::::::::::::::::::::::::::	572 62626
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; GENERAL INFORMATION: ; APPLICANT: Kosan Biosciences, Inc.	112 alva
ARFLICANT: Julien, Bryan FAPPLICANT: Katz, Leonard Abbricann: Abell	55612 GCGT
; APPLICANT: Tang, Li	124 ValLy
; APPLICANT: Ziermann, Rainer ; TITLE OF INVENTION: Recombinant Methods and Materials for Producing	55662 GATG
; TITLE UF INVENTION: EPOCHALONE and Epochilone Derivatives ; FILE REFERENCE: 30062-20031.00 : CTRRENT ADDITIONATION NUMBER: 10,00,443-503.	130 .Aspl
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APPLICANT: Guiderrez, Santiago
APPLICANT: Darredo, Jose L.
APPLICANT: Von Dochren, Hans
APPLICANT: Pan Liempt, Henk
APPLICANT: Montenegro, Eduardo P.
TITLE OF INVENTION: A Method for Influencing Beta-Lactam
TITLE OF INVENTION: A Method for Influencing nd for Isolation of Large
TITLE OF INVENTION: Antibiotic Production and for Isolation of Large
NUMBER OF SEQUENCES: 27
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ADDRESSEE: McDonnell Boehnen Hulbert & Berghoff
STREET: 300 South Wacker Drive
                                                                                                                              57792 TTTGATGTGCGACGGGACACGCGGGGCCTCGCGTAC 57830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/222,617A
FILING DATE: US/4-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length: 972
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ORIGINAL SOURCE:
ORGANISM: Acremonium chrysogenum
                                                                                                                                                                                                                                                                                                                 Veenstra, Annemarie E.
Martin, Juan F.
Garcia, Bruno D.
                                                                                                                                                                                                                                            Sequence 3, Application US/08222617A
Patent No. 5882879
GENERATION:
APPLICANT: Veenstra, Annemarie E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 9 INFORMATION FOR SEQ ID NO: 3: SEQUENCE CHARACTERISTICS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 11601 base pairs TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  118.50
0.296
41.255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            single
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: SULTING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 04 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
LOCATION: 805(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Quality:
Ratio:
Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60606
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_scores:
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APPLICANT:
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                                                                                                                                                                                                                                                                                                                                    APPLICANT
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7245 CCAGGCAGTGCAGAAAGAGCTTGTCGATGCCCAGATCCATCAGGACTT., 7292
                                                                                                                                                                                            7342 CGCCATCCCCTTCTCCAGGCCGTGTTCAACTGGGAAAACGTACCGGCCAA 7391
                                                                                                                                                                                                                                                                                                                                                                                                              7392 TGTCCACGAGGAGCAGCTGCTTCAGGAGTACAAGCCGCCCTCGCCT.... 7437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7447 ......GCGGCCAAGTITGAICTCAACGT 7469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7470 C......ACGGTGAAGGAGCGTCA 7489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7540 ACCGTTCAGGGGTTCATGGAAACCTTCCATCTCCTTCTTCGACAACTGGC 7589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1690 AATTCACTCCATGGGCTCTTCGAGGACATC......GTGGCCTCGAC 7730
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7640 TGTTGAATCCAGAGCGACTAAACCTTCAGCCCTCAAGCCGGACAGCGGA 7689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96 IleAspGlyValValAlaArgAsnArgAlaLeuAsnGlyAspLeuValVa 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112 lValLysLeuLeuProGluAspGlnTrpLysAlaValLysProGluSerA 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          839 AGCAGACGACCGCATCGCTCTTTTTGGACAAGAGCATCGATATGGTGA 7888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7889 ITGCTCTCGGCAGTTTGGAAGGCCGGTGCCGCATATGTGCCCCTTGAC 7938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       129 snAspLysGluIleGluAlaThrTyrGluAlaAspIleProGluGlu... 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            179 GlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIleSerTh 195
                                                                                                                                                    29 yAlaSerProGlyAspLysLysSerLysAsnLysSerMetArgGlyLysL 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145 ......GlyCysGl 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  147 yHisHisProLeuGlnGlnSerArgLysGlyTrpSerGlyProAspVall 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    164 lelleGluAlaGlnPheAspAsp.....SerAspSerGluAspArgHis 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 195 rProAspArgGlyLysGluAspSerSerThrProValMetLysAspGluA 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212 snThrProlleProGlnAspThrArgGlyLeuSerGluLysSerLeuGln 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        229 LysSerAla...LysValValTyrIleLeuGluLysLysHisSerArgAl 244
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                                                                                                                                                                                                                                                                                                                                                            62 yLeuLysArgGlyThrLeuIleGlnGlyValLeuArgIleAsnProLysL 79
                                                  13 ProGlyThrProArgGlyValSerSerValValGlyProSerAlaValGl 29
                                                                                                                                                                                                                                                         46 ysLysSer.IlePheGluThrTyrMetSerLysGluAspValSerGluGl 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 79 ysPheHisGluAlaPheIleProSerProAspGlyAspArgAspIlePhe 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .....CIGCCTTCG.....
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        to: 11601
     from: 1
to: US-08-222-617A-3
Align seg 1/1
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271	Hisargvalpro	274 7988
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293 8139	PPhealaasnThrLeuPheIleCysArg	302 8188
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366 8391	ValGlyLysArgArgAspLeuArgLysAspCysIlePheThrIleA :::   ::   ::    ::     CGACATCGGCCGCAGGAGAAGCTATCCTATCTCAGCGGA	381 8431
381 8432	AlaL	397 8469
398 8470	ThraspGlyThrPheGluValGlyValHisIleAlaAspValSeTTyrPh :::!   :::: ::::: CCGCAT	414 8501
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448 8652	GludluLeuCysSerLeuAsnProMetThrAspLysLeuThrP                 CCCCGGAAGTCACGTCTACGTCCTGAAGGACGACTTCAGGGTGTTCCTT	462 8701
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479	Phe	491 8801
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800r	ACCCGMANCAGGCANGIGGCAGGICGCCCCAGGGCCCCCCCCCCCC	21
n in	GAGATCTGGTGCGCTTCCGTGGACCCCACCATCTCGAGTA	6
522		522
8902	GGCTTCCGCATCGAGCTCTCCG	8951
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י ב	.AlaLeuArdLeuAspGln	52
0	: : : : ZAGCGC	0
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9052	GTCTGCTACTACACGCTCAACGCCGGAACTGTGTGCGAAGCATCGAGTAT	9101
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0	CACAACTCAAGTCTCGCAGCCAGAGCTTT	N r
09	aLeuLe	618
4	CACCGCTCCACGAAATTCGACAGAGGAAACCTTGTGCCCAGCTTTGGG	7 7
618 9296	spLeuValGluPheCysAspGlnMetGlyLeuProMetAsyPalSerSer :	634 9342
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9 1	snValProLeuTyrThrHisPheThrSerProlleArgArgPheAlaA. ::	706
707	ValileValHisArqLeuLeuAlaAlaAlaLeuGlyTyrSerGluGlnP	723

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APPLICANT: Garcia, Bruno D.
APPLICANT: Garcia, Enro D.
APPLICANT: Gutlerrez, Santiago
APPLICANT: Gutlerrez, Santiago
APPLICANT: Balsas, Harriet
APPLICANT: Palsas, Harriet
APPLICANT: Von Liempt, Henk
APPLICANT: Wontenegro, Eduardo P.
APPLICANT: Wontenegro, Eduardo P.
TITLE OF INVENTION: A Method for Influencing Beta-Lactam
TITLE OF INVENTION: Antibiotic Production and for Isolation of Large
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRES
3640 CICICCGICGAAGGCICCGGGGGGGTGCICTAAGCIGCIGCAGGGCGCCA 9689
                                                                                                                                                                                                                         9690 CARCGIGCIGCGICIGAGACTGCAACGCCGGGACGAAGGICGCCAIGIIC 9739
                                                                                                                                                                                                                                                                                                                                                                                                9740 AGACCITIGCGGTGACTGCGCGCAACCTCGCTTGTGCTAGACCGA 9789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9790 CGAAGCTICGAGGACGCAGGAGGATGTACAGGAGGCTCTCTGCGAGATCCA 9839
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   744 .....SerLysArgValGlnGlu....LeuSerIleGl 753
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-222-617A-24
                                                                                                                                                                                                                                                                                                                      734 ......AlaAspHisCysAsnAspArgArgMetAla......
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                                                                                                                                          723 oAspValGluProAspThrLeuGlnLysGln.......
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/222,617A
FILING DATE: 04 APR-1994
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LOCATION: 388..11526
OTHER INFORMATION: /function= "Enzyme"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 24, Application US/08222617A Patent No. 5882879 GENERAL INFORMATION:
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CLASSIFICATION: 435
ATORNEY/AGENT INFORMATION:
REFERENCE/DOCKET NUMBER: 97,157
INFORMATION FOR SEQ ID NO: 24:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Acremonium chrysogenum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Veenstra, Annemarie E. APPLICANT: Martin, Juan F. APPLICANT: Garcia, Bruno D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA (genomic)
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TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9881 CGTACATCCACGGT 9894
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COUNTRY: USA
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CITY: Chicago
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LOCATION: 8050..8052
COTHER INFORMATION:
COTHER INFORMATION: /note= "NNN-AGU, AGC, UCU, UCC, UCA, or UCG"
US-08-222-617A-24
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7293 .GCCATTCCAGGAGATCACCAAGCTTCTTCATGTGCAGCACGATCCAAGC 7341
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129 snAspLysGluIleGluAlaThrTyrGluAlaAspIleProGluGlu... 144
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      164 leIleGlualaGlnPheAspAsp.....SerAspSerGluAspArgHis 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               179 GlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIleSerTh 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29 yAlaSerProGlyAspLysLysSerLysAsnLysSerMetArgGlyLysL 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rProAspArgGlyLysGluAspSerSerThrProValMetLysAspGluA 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212 snThrProlleProGlnAspThrArgGlyLeuSerGluLysSerLeuGln 228
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                                                                                                                                                                                                                                                                                                                                                                                                                                          13 ProGlyThrProArgGlyValSerSerValValGlyProSerAlaValGl
                                                                                                                                                                                                                                                                                                                                                                                            Align seg 1/1 to: US-08-222-617A-24 from: 1 to: 11601
                                                                                                                                                                                                                                    Length: 972
Gaps: 44
Percent Identity: 19.650
OTHER INFORMATION: /product= "ACV Synthetase"
                                                                                                                                                                                                                                                                                                                        alignment_block:
US-09-647-377-9 x US-08-222-617A-24
                                                                                                                                                                                                                            118.50
0.296
41.255
                      FEATURE:
NAME/KEY: CDS
                                                                                                                                                                                                                                                      Ratio:
Percent Similarity:
                                                                                                                                                                                                                                 Quality:
                                                                                                                                                                                                           alignment_scores:
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7000		
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618 9296	spLeuValGluPheCysAspGlnMetGlyLeuProMetAspValSerSer ::   :::    :::    ::: :::   ::: :::	634 9342
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eq_documentation_block:
Sequence 9, Application US/08845258
Patent No. 6183976
GENERAL INFORMATION:
APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond
APPLICANT: Houghton, Raymond
APPLICANT: GENTLY, Paul R.
TITLE OF INVENTION: AND TREATMENT OF B. MICROTI INFECTION
NUMBER OF SEQUENCES: 53
CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E: SEED AND BERRY 6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/08/845,258
FILING DATE: 24-ARR-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 210121.426C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFRX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 9:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PC-DOS/MS-DOS
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COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
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317 GAG...ATAGATGAG......AAAATAAGAAATTTAACGAGAATCTTGT 357
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      57 GluAspValSerGluGlyLeuLysArgGlyThrLeuIleGlnGlyValLe 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73 uArglleAsnProLysLysPheHisGluAlaPheIleProSerProAspG 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   675 AACGCAAGAAGTCTCACCTCTTTGAAGACAAAGGTAGAAATAAGGAT 724
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; TOPOLLOGY: linear
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355 1263	GlnSerLeuProTrpThrIleProProAspGluValGlyLysAr.	. 55
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Run on:

Title:

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Mus musculus

Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Bukaryota; Metazoa; Chordata; Sciurognathi; Muridae; Murinae; Mus.

Butheria; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus.

National Institutes of Health, Mammalian Gene Collection (MGC)

Unpublished (1999)

Contact: Robert Strausberg, Ph.D.

Email: cqapbs-r@mail.nih.gov

Contact: Robert Strausbert Smith, Ph.D.

Contact: Robert Strausberg Ph.D.

Contact: Contact: Contact: Consortium (LLML)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLML at:

http://image.llnl.gov

Plate: LLAMI1042 row: h column: 06

High quality Sequence Stop: 689.

Ince
                                                                                                                                                                                                                                                                                                                                                                          BIO78196 602872520F1 NCI_CGAP_Mam2 Mus musculus cDNA clone IMAGE:5004341 5',
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BI078196
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house mouse.
443
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BIO78196
LOCUS
DEFINITION
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SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
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Copyright (c) 1993 - 2000 Compugen Ltd.
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                                                          OM nucleic - nucleic search, using sw model
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Result

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Unpublished
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MIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
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                                                 Score 674.4; DB 10
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AL Contact: Robert Strausberg, Ph.D.

Email: cgapbs-rémail.nih.gov
Tissue procurement: Lothar Hennighausen Ph.D., Priscilla Furth
Tissue procurement: Lothar Hennighausen Ph.D., Priscilla Furth
Ph.D.

CDNA Library Araged by: The I.M.A.G.E. Consortium (LINL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LIML at:
http://image.lhin.gov
Plate: LiAnd0832 row: b column: 17
High quality sequence stop: 701.
Location/Qualifiers
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Location/Qualifiers

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0; Mismatches 9; Indels 2;
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Best Local Similarity 98.4%;
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Db 61 GAAGAGCTTCCCCCAA Qy 1709 aacctgcacagcattg Db 121 AACCTGCACAGCATTG Qy 1769 ttagatcagctgaagc Db 1819 ttagatcagctgaagc Cy 1829 accatctatgagtacc	Db 241 CACATCTATGAGTACC Oy 1889 atggcggtggcccaca Oy 1849 atgccgtggcccaca Oy 1949 ccccaccacagacga Oy 1949 ccccaccacagacga Oy 2009 cccatggatgtcagct	2069 481 2129 541 2189 601 2249	RESULT 4 B1650394 LOCUS DEFINITION 603296125F1 NI DEFINITION 81650394 VERSION B1650394 1 G3 KEYWORDS SOURCE ORGANISM MUSCHUSE. CORGANISM MUSCHUSE M	o o
Oy 1645 tgaggaagagcttcccccaatttctccagagcacagcgtcgaggaggtgcaccaggcagt 1704	BEA50541 BEA	EMERIYOGA; MELAZOGA; CIDIGAGA; VELCEDIAGA; MARINAGA; MARINAGA; MARINAGA; MATHORS; MATCAGAP HTD://www.ncbi.nlm.nih.gov/ncicgap.  TITLE NATIONAL Cancer Institute, Cancer Genome Anatomy Project (CGAP), TURDE THORY See Index JOURNAL Oppublished (1997)  COMMENT Contact: Robert Strauberg, Ph.D. COMMENT Contact: Robert Strauberg, Ph.D. COMMENT Contact: Robert Strauberg, Ph.D. COMMENT Anary Preparation: Life Technologies, Inc. CONA. Library Preparation: Library Prep	MGI:1434927 Seq primer: -40RP from Gibco High quality sequence stop: 440.  Location/Qualifiers Location/Qualifiers 1681 /organism="Mus musculus" /strain="FVB/WI" /db_xref="taxon:10090" /clone="IMAGE:3674159" /clone=lib="NCI_CGAP_Mam6" /sex="female, virgin" /tissue_type="infiltrating ductal carcinoma" /dev_stage="s months" /lab_host="phi08" /lab_host	SILE_2: Not!; Cloned uniquiscitionally. Filmer: Oligo dr.  Library constructed by Life Technologies. Investigator providing samples: Jeffrey Green, M.D., NIH"  ORIGIN  Query Match  Est Local Similarity 99.0%; Pred. No. 2.6e-106; Matches 674; Conservative 0; Mismatches 7; Indels 0; Gaps 0;  QY 1589 aaactgagctacgaccatgccagagcatgatcgaaaatccaactgagaagatccctgag 1648

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1158 bp mRNA linear EST 12-SEP-2001
NIH_CGAP_Mam3 Mus musculus CDNA clone IMAGE:5336719 5',
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theria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
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Robert Strausberg, Ph.D.
Rapbs-r@mail.nih.gov
orotement: Lothar Hennighausen Ph.D., Chu-Xia Deng Ph.J.
oroty Preparation: Life Technologies, Inc.
orary Arrayed by: The I.M.A.G.E. Consortium (LLNL)
stary Arrayed by: The I.M.A.G.E. Consortium (LLNL)
stary Arrayed by: Toryte Genomics, Inc.
staribution: MGC clone distribution information can be
cough the I.M.A.G.E. Consortium/LLNL at:
AMA1855 row: a column: 08
lity sequence stop: 762.
Lity sequence stop: 762.
Location/Qualifiers
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/organism="Mus musculus"
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/tissue_Lype="tumor, gross tissue"
/tissue_Lype="tumor, gross tissue"
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Site_2: Sal1; Cloned unidirectionally. Primer: Oligo dT.
Average insert 2 kb. Library constructed by Life
Technologias, catalog #12017-018. Investigators providing
samples: Lothar Hennighausen/Chu-Xia beng, NIH Reference
for transgenic model: Xu et al., Nature Genetics 22, 37-43
(1999). Note: this is a NCT_CGAP Library.
51 a 259 c 326 g 221 t lothers
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Pred. No. 6.4e-106;
0; Mismatches 33; Indels 8;
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Best Local Similarity 94.8%;
Matches 746; Conservative (
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/note="Organ: mammary; Vector: pcMv-SPORT6; Site_1: Not1; Site_2: Sal1; Cloned unidirectionally. Primer: Oilgo dT. Average insert 2.5 kb. Library constructed by Life Technologies, catalog # 12018-016. Investigators providing samples: Lothar Henighmasen/Priscalla Purth, NIIH
Reference for transgenic model: Li et al., Cell Growth and Differentiation 7, 3-11 (1996). Note: this is a NCI_CGAP
B1661242 | 12-SEP-2001 | B161242 | EST 12-SEP-2001 | B13304587F1 | MH_CGAP_Mam4 Mus musculus cDNA clone IMAGE:5350461 5',
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                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. (bases 1 to 682)
NIH-WGC http://mgc.ncl.nih.gov/, National Institutes of Health, Mammalian Gene Collection (MGC) Unpublished (1999)
Contact: Robert Strausberg, Ph.D. Emall: Gapbs-r@mail.inh.gov
Tissue Procurement: Lothar Hennighausen Ph.D., Priscilla Furth
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at:
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/clone="IMAGE:5350461"
/clone=lib="NIH_CGAP_Man4"
/tissue_type="t-unor, gross tissue"
/lab_host="DH108"
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llarity 99.7%; Pred. No. 3.6e-102;
Conservative 0; Mismatches 0;
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Plate: //image.llnl.gov
Plate: //image.llnl.gov
High quality sequence stop: 682.
Location/Qualifiers
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                                                  mRNA sequence.
BI661242
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The Institute of Physical and Chemical Research (RIKEN)
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan Tel: 81-45-503-9216
Fax: 81-45-503-9216
Email: genome-reségsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
Carninci.p., Shibata,Y., Hayashtau,N., Sugahara,Y., Shibata,Y.,
Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new perpare full-length cDNA libraries for rapid discovery of new genes. Genome Res. . 10 (10), 1617-1630 (2000)
wagi,K., Fujiwake,S., Inoue,K., Togawa,X., Izawa,M., Ohara,E., Watshiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura iss., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A. and Hayashizaki,Y.
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FRIEN Mouse ESTS (Arakawa,T., et al. 2001)

On Jun 10, 2000 this sequence version replaced gi:8443480.
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus
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AUTHORS
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Computer-based methods for the mouse full-length cDNA
computer-based methods for the mouse full-length cDNA
encyclopedia: real-thme sequence clustering for construction of a
nonredundant cDNA library. Genome Res. . 11 (2), 281-289 (2001)
Yamanaka,I., Kiyosawa,H., Kondo,S., Saito,T., Shinagawa,A., Aizawa
Y., Fukuda,S., Hara,A., Itoh,M., Kawai,J., Shibata,K., Arakawa,T.,
Ishii,Y. and Hayashizaki,Y.
Mapping of 19032 mouse cDNAs on mouse chromosomes. J. Struct.
Punc. Genomics 2 pre, L72-L86 (2001)
Please visit our web site (http://genome.gsc.riken.go.jp/) for further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note-"Site.] Sall; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAGGAGCICTTTTTTTTTTTTTTV 3'], cDNA was
RIKEN integrated sequence analysis (RISA) system--384-format sequencing pipeline with 384 multicapillary sequencer. Genome Res. 10 (11), 1757-1771 (2000) Konno, H., Fukundishi,Y., Shibata,K., Itoh,M., Carninci,P., Sugahara
                                                                                                                                                                                                                                                                                                                                                               cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKBN. Division of Experimental Animal Research in Riken contributed to
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Pred. No. 1.3e-101
0; Mismatches 17
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601270510F1 NCI_CGAP_Mam1 Mus musculus cDNA clone IMAGE:3599570 5', BE380437
Library constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Robin Humphreys,
                                                                                                                             1116 cagaagggatactgacagaatatggtgtggacttctctgatttctctcagaagttcttg 1175
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NIH-MGC http://mgc.nci.nih.gov/.
National institutes of Health, Mammalian Gene Collection (MGC)
Contact: Robert Strauberg, Ph.D.
Email: capbs remail.nih.gov
Enail: capbs remail.nih.gov
Contact: Robert Strauberg, Ph.D.
Email: capbs remail.nih.gov
Contact: Robert Strauberg, Ph.D.
Contact: Robert Strauberg, Ph.D.
Enail: capbs remail.nih.gov
Contact: Robert Strauberg, Ph.D.
Enail: capbs remail.nih.gov
Clone distribution: MGC clone distribution information can be http://image.lihi.gov
Librate: LinAM9309 row: f column: 15
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                  2654 gcagaggccacagcctcaagtacagtgctatcctgaagcgaccaggcctggagaaggcg
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/lab_host="DH10B"
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High quality sequence stop: 656.
Location/Qualifiers
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BE791331 887 bp mRNA linear EST 20-SEP-2000 601582710F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3937083 5',
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Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Bukaryota; Metazoa; Chordates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 887)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
                                                                                                                   1160 tetteagaagttettgaatgteteetteaaageetgeeetggaeaateeeacetgatgag 1219
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                                                    1100 gaaatcgagcctgaaacagaagggatactgacagaatatggtgtggacttctctgatttc 1159
                                                                                                                                          3; Gaps
19.0%; Score 590.2; DB 10; Length 887; 82.5%; Pred. No. 2.2e-92; ive 0; Mismatches 148; Indels 3;
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/tissue_rype="small cell carcinoma"
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Best Local Similarity 82.5
Matches 712; Conservative
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172 c 179 g 167 t lothers
                      Eukaryota: Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 725)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
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                                                                                                                     Contact: Robert Strausberg, Ph.D.
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Gilbert Smith, Ph.D.
Tissue Procurement: Gilbert Smith, Ph.D.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LINL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC.Clone distribution information can be found through the I.M.A.G.E. Consortium/LINL at:
http://image.linl.gov
Plate: LLAM6782 row: d column: 03
High quality sequence stop: 596.
Location/Qualifiers
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Pred. No. 1.9e-97;
0; Mismatches 10; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                              biopsy sample"
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/clone_lib="NCI_CGAP_Maml"
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/lab_host="DH108"
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/organism="Mus musculus"
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illarity 97.9%;
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3223-16 Mouse E14.5 retina lambda ZAP II Library Mus musculus cDNA,
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Wh.X., Zhao, S., Pershad, R., Hsieh, T.-F., Scarpa, A., Wang, S.W., White, R.A., Beremad, P.D., Thomas, T.L., Gan, L. and Klein, W.H. Gene expression in the developing mouse retina by EST sequencing
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                              gataagaacagtgacctgtttaagaaatacgccctgttttctccttcagaccaccgagta
                                                                                                                                           tttgccaacacgctgttcatctgccgcatcatagactggaaggaggactgtaattttgcc
                    gtttacatcttggagaaaagcattctcgagcagcaactggcatcctgaaactcttggct
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Nucleic Acids Res. 29 (24), 4983-4993 (2001)
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/bxref="taxon:10090"
/clone_lib="Mouse El4.5 retina lambda ZAP II Library"
/tissue_type="neural retina"
/dev_stage="embryonic day 14.5 post-fertilization"
/ 17 c 149 g 137 t
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Contact: Klein WH
Department of Biochemistry and Molecular Biology
University of Texas M.D. Anderson Cancer Center
Box 117, 1515 Holcombe Blvd., Houston, TX 77030, USA
Tel: 713 792 3346
Fax: 713 790 0329.
                                                                                                    Location/Qualifiers
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 600)
Mu,X., Zhao,S., Pershad,R., Hsieh,T.-F., Scarpa,A., Wang,S.W., White,R.A., Beremand,P.D., Thomas,T.L., Gan,L. and Klein,W.H. Gene expression in the developing mouse retina by EST sequencing and microarray analysis
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/db_xref="taxon:10090"
/clone_lib="Mouse E14.5 retina lambda ZAP II Library"
/tissue_type="neural retina"
/dex_stage="neural retina"
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Pred. No. 3.8e-91;
0; Mismatches 4; Indels 1;
                                                                                                                                                                                                       Contact: Klein WH
Department of Biochemistry and Molecular Biology
University of Texas M.D. Anderson Cancer Center
Box 117, 1515 Holcombe Blvd., Houston, TX 77030, USA
Tel: 713 792 3646
Fax: 713 790 0329.
                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
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S NH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)

L Upublished (1999)

Contact: Robert Strausberg, Ph.D.

Email: Gapbbs-remail.nih.gov

Tissue Procurement: Lothar Hennighausen Ph.D., Robin Humphreys

CDNA Library Preparation: Life Technologies, Inc.

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can be

found through the I.M.A.G.E. Consortium/LLNL at:

http://mage.lln.gov

Plate: LLAM5511 row: n column: 10

High quality sequence stop: 569.
                                                                                                     Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
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/strain="C57/B6"
/db.xref="Ltaxon:10090"
/clone="IRMGE:3482313"
/clone=lib="NCI_CGAP_Mam5"
/tissue_type="Tumor, gross tissue"
/lab_host="DH10B"
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/db_xref="taxon:966"
/clone="lindGE:4900492"
/clone="lindGE:4900492"
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Site_2: XhoI; CDNA made by oligo-dT priming.
Directionally cloned into ECORIX/NoI sites using the following 5' adaptor: GCACGAGGG; Size-selected >500pp for average insert size 1.000 Library constructed by Ling Hong in the laboratory of Gerald M. Rubin (University of California, Berkeley) using ZaP-cDNA synthesis kit (Stratagene) and Superscript II RT (Life Technologies)."
                                                                                                                                                                                                                                                                                                        BG825206 735 bp mRNA linear EST 22-MAY-2001
62747617F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4900492 5',
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Contact: Robert Strausberg, Ph.D.
Email: capabs.remain.inh.gov
Tissue Procurement: Arcc
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLCM1794 row: a column: 05
High quality sequence stop: 732.
I. 735
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Pred. No. 5.2e-89;
0; Mismatches 102; Indels 0;
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                                                                                                                                                                                                               600 CAGCATTGCCAAGGCAATCCGGC 622
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mRNA sequence.
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1 (bases 1 to 727)
1 WIH MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
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Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC
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661 CATGGCGCCCGATACCCTGCAGAAACAGGCGGACCACTGTAACGACCGCCGCCATGGCGTC 720
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                           2356 caaacg 2361
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                                                                                                               /tissue_type="adenocarcinoma cell line"
/lab_host="DH10B (phage=resistant)"
/note="Organ: colon; vector: pOTB7; Site_1: XhoI; Site_2:
GCORI; cDNA made by oligo-dr priming. Directionally
cloned into EccRIXAhoI sites using the following 5'
adaptor: GGCACGAG(G). Size=selected >500bp for average
insert size 1.8kb. Library constructed by Ling Hong in
the laboratory of Gerald M. Rubin (University of
california, Berkeley) using ZAP-cDNA synthesis kit
(Strategene) and Superscript II RT (Life Technologies)"
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Pred. No. 3.6e-88;
0; Mismatches 100; Indels (
    http://image.llnl.gov
Plate: Lichl709 row: k column: 18
High quality sequence stop: 727.
Location/Qualifiers
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                                                                                                                                                                                                                                                                                             18.3%;
86.2%;
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1. (bases 1 to 1161)

1. NIH-MGC http://mgc.nci.nih.gov/.

1. NIH-MGC http://mgc.nci.nih.gov/.

1. National Institutes of Health, Mammalian Gene Collection (MGC)

1. Ontact: Robert Strausberg, Ph.D.

Contact: Robert Strausberg, Ph.D.

Email: cgapbs-femail.nih.gov/.

CDNA Library Preparation: Life Technologies, Inc.

CDNA Library Preparation: Life Technologies, Inc.

CDNA Library Prayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:

http://image.llnl.gov

Plate: LLAM10066 row: k column: 13

High quality sequence stop: 639.

Location/Qualifiers

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Location/Qualifiers

Irce
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Site_2: Sali: cloned unidirectionally; oligo-dT primed.
Average insert size 1.867 kb. Library enriched for full-length clones and constructed by Life Technologies.
Note: this is a NHH_MGC Library."

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Pred. No. 1.9e-83;
0; Mismatches 93,
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BG106547.1 GI:12600393
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86.5%;
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Matches 594; Conservative
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Search completed: July 8, 2002, 08:38:54 Job time: 2461 sec

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July 8, 2002, 07:58:23 ; Search time 2322.19 Seconds (without alignments) 18017.716 Million cell updates/sec
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GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
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Gapop 60.0 , Gapext 60.0
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

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SUMMARIES	BE380437 BI550394 BI650394 BIOF8196 BIO78196 BIO37094 BP450541 BP85565 BB1988256 BB1988256 BB1910893 BE534295 BE910893 BE534295 BE34291 AIS97514 AIS97514 AIS97514
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112.2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	BE380437 601270510F1 NCI_CGAP_Mam1 mRNA sequence. BE380437.1 GI:9325802 BE380437.1 GI:9325802 BESS. Mus musculus Bukaryota; Metazoa; Chord Bukaryota; Metazoa; Chord Mus masculus I (Dases 1 to 725) NIH-MGC http://mgc.nci.nl National Institutes of He Upublished (1999) Contact: Robert Strausber Email: cgapbs-rémail.nlh. Tissue procurement: Gilbe Contact: Robert Strausber Email: cgapbs-rémail.nlh. Dan Sequencing by: Incyt Clone distribution: MGC found through the I.M.A.G http://mage.llnl.gov dlate: LiAM8782 cow: d high quality sequence sto high sequenc
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            found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
http://image.llnl.gov
Htgh.quality sequence stop: 762.
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Tissue Procurement: Lothar Hennighausen Ph.D., Chu-Xia Deng Ph.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
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Contact: Robert Strausberg, Ph.D.
  samples: (
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VERSION KEYWORDS SOURCE ACCESSION

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RESULT LOCUS JOURNAL

COMMENT

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Location/Qualifiers
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 701)
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CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
Plate: LLAM10832 row: b column: 17
Plate: LLAM10832 row: b column: 17
High quality sequence stop: 701.

1. 701
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Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Lothar Hennighausen Ph.D., Priscilla Furth
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                                                                                                            NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
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Pred. No. 1.2e-150;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                           /organism="Mus musculus"
     BG864079
BG864079.1 GI:14214617
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99.8%;
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                                                              Mus musculus
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ï BIO78196 695 bp mRNA linear EST 20-JUN-2001 602872520F1 NCI\_CGAP\_Mam2 Mus musculus cDNA clone IMAGE:5004341 5', /note="organ: mammary; Vector: pCMV-SPORT6; Site\_1: Sall; Site\_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigator providing samples: Gilbert Smith, NIH"

151 c 200 g 153 t E (bases it of 695)

S NIH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)

L Unpublished (1999)

Contact: Robert Strausberg, Ph.D.

Contact: Robert Strausberg, Ph.D.

Tissue Procurement: Gilbert Smith, Ph.D.

Tissue Procurement: Gilbert Smith, Ph.D.

CONA Library Preparation: Life Technologies, Inc.

CONA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Theye Genomics, Inc.

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:

http://image.llnl.gov

Plate: LLAMI1042 row: h column: 06 Mus musculus Eukarvota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1585 caccaaactgagctacgaccatgcccagagcatgatcgaaaatccaactgagaagatccc 1644 1645 tgaggaagagcttcccccaatttctccagagcacagcgtcgaggaggtgcaccaggcagt 1704 11 CGGCCTCCCGGGAGGGACGCTCGTGACTGAGCTGCTGAAGGCAGGAGGAACTCTGAG 70 Gaps eggeeteccegggagegaegetegtgaeaactgagetgetgaaggeaggaaggaaetetgag 69 1; Score 558; DB 10; Length 695; Pred. No. 6e-149; 0; Mismatches 0; Indels 1 /tissue\_type="tumor, biopsy sample" /dev\_stage="5 months" /lab\_host="bH108"

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Mus musculus cDNA clone IMAGE:5350461 5',
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Eukaryota: Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria: Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 682)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
                                                                            190
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CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAM1890 row: m column: 22
High quality sequence stop: 682.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tissue Procurement: Lothar Hennighausen Ph.D., Priscilla Furth
                                ccatcctgactacaagctgaaccttcggtctccgggggacccccagaggtgtgtcctctgt
                                           gcgagggaagaaaaagagcatatttgaaacctacatgtccaaggaggatgtttcagaagg
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603304587F1 NIH_CGAP_Mam4
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B1661242
B1661242.1 GI:15575478
                                                                                                                                                                                                                                                                                                                                                                                                                                            house mouse.
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/db_xref="taxon:l0090"
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/clone="IMAGE:5350461"
/clone="Inade:10090"
/clone="Inade:10090"
/clone="Dailo"NIH_CGAP_Mand*
/tissue_type="tunnor, gross tissue"
/lab_host="DH10B" or gross tissue"
/note="Organ: mammary; Vector: pCwV-SPORT6; Site_1: Not!;
/note="Organ: mammary; Vector: primer: Oligo dT.
/note="Organ: mammary; Vector: primer: Oligo dT.
/note="Organ: mammary; Vector: primer: Not!"
/note="Organ: mammary; Vector: primer: primer: Not!"
/note="Organ: mammary; Vector: primer: 
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BB037094.2 GI:15403721
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Bukaryota; Wetazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus.
1 (bases 1 to 674)
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lilarity 100.0%; Pred. No. 3.9e-142;
Conservative 0; Mismatches 0;
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/organism="Mus musculus"
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BF450541 uz67f12.yl NCI_CGAP_Mam6 Mus musculus cDNa clone IMAGE:3674159 5' similar to SW:YR86_CAEEL Q09568 HYPOTHETICAL 93.7 KDA PROTEIN F48E8 6 IN CHROMOSOME III. [2] SW:YR86_CAEEL ;, mRNA sequence.
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 681) NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap. NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap. National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2855 tttttatttttccttttattttacttttgcagctcagtttttaaatgaactggaaggtta 2914
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Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Jeffrey Green M.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LINL)
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Konno, H., Fukunishi, Y., Shibata, K., Itoh, M., Carninci, P., Sugahara, Y. and Hayashizaki, Y.
Computer-based methods for the mouse full-length cDNA encyclopedia: real-time sequence clustering for construction of a nonredundant cDNA library. Genome Res. 11 (2), 281-289 (2001)
Yamanaka, I., Kiyosawa, H., Kondo, S., Saito, T., Shinagawa, A., Aizawa, K., Fkuda, S., Hara, A., Itoh, M., Kawai, J., Shibata, K., Arakawa, T., Ishii, Y. and Hayashizaki, Y.
Mapping of 19032 mouse cDNAs on mouse chromosomes. J. Struct.
Func. Genomics 2 pre, L72-L86 (2001)
Please visit our web site (http://genome.gsc.riken.go.jp/) for further details.
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     Arakawa,T., Carninci,P., Fukuda,S., Furuno,M., Hanagaki,T., Hara,A.,
Hiramoto,K., Hori,F., Ishii,Y., Ito,M., Kawai,J., Konno,H., Kouda
,M., Koya,S., Matsuyama,T., Miyazaki,A., Nomura,Y., Ohno,M.,
Okazaki,Y., Okido,T., Saito,R., Sakai,C., Sakai,K., Sano,H., Sasaki
,D., Shibata,K., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H.,
Tagami,M., Tagawa,A., Takahashi,F., Takeda,Y., Tanaka,T., Toya,T.,
Muramatsu,M., and Hayashizaki,Y., et al. 2001)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: genome-resigsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
Carninci.P., Shibata,Y., Hayatsu,N., Sugahara,Y., Shibata,K., Itoh
,M., Konno,H., Okazaki,Y., Muzamatsu,M. and Hayashizaki,Y.
Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-length cDNA libraries for rapid discovery of new
genes. Genome Res. . 10 (10), 1617-1630 (2000)
wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura
,S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A. and
Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to
                                                                                                                                                                                                                                                                                     Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suchiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan Tel: 81-45-503-9222
Fax: 81-45-503-9216
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                                                                                                                                                                                                                  Unpublished (2001)
On Jun 10, 2000 this sequence version replaced g1:8443480.
Contact: Yoshihide Hayashizaki
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/lab_host="DH10B"
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/db_xref="taxon:10090"
/clone="5930423H14"
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DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NCI-CGAP Clone distribution information can be
found through the I.M.A.G.E. Consortium/LML at:
image.llnl.gov/image/html/iresources.shtml
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                                                                                                  /organism="Mus musculus"

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/db_xef="kaxon:10090"

/clone=lib="NCI_CGAP_Mam6"

/sex="female, virgin"

/tissue_type="infiltrating ductal carcinoma"

/lab_host="DH108"
                                                                                                                                                                                                                                                                                   Length 681;
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Pred. No. 3.8e-140;
0; Mismatches 1;
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99.8%;
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Matches 577; Conservative
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ENGARYOTE: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Enkaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Mus. En (bases 1 to 60)

R Mu.X., Zhao, S., Pershad, R., Hsieh, T.-F., Scarpa, A., Wang, S.W., White, R.A., Beremand, P.D., Thomas, T.L., Gan, L. and Klein, W.H. Gene expression in the developing mouse retina by EST sequencing and microarray analysis (2001)

AL Nucleic Acids Res. 29 (24), 4983-4993 (2001)

Contact: Klein WH
Department of Blochemistry and Molecular Biology
University of Texas M.D. Anderson Cancer Center
Box 117, 1315 Holcombe Blvd., Houston, TX 77030, USA
Tel: 713 790 329.
    mRNA linear EST 20-DEC-2001
ZAP II Library Mus musculus cDNA,
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/db_xref="taxon:10090"
/db_xref="taxon:10090"
/clone_lib="mouse E14.5 retina lambda ZAP II Library"
/tissue_type="neural retina"
/dev_stage="embryonic day 14.5 post-fertilization"
171 c 149 g 137 t
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Mammalia: Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 692)
Arakawa,T., Carninci,P., Fukuda,S., Furuno,M., Hanagaki,T., Hara,A., Hiramoto,K., Hori,F., Ishii,Y., Ito,M., Rawai,J., Konno,H., Kouda,M., Koya,S., Matsuyama,T., Miyazaki,A., Nomura,K., Ohno,M.,
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                                                                  contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAGGATCTATTTTTTTTTTTVN 3'], cDNA was
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                                                                                                                                                                                                                                                              Mis musculus

Eukaryota; Metzoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 684)

Arakawa,T., Carninci,P., Fukuda,S., Furuno,M., Hanagaki,T., Hara,A.,

"Hismoto,K." Horl,F., Ishli,Y." Ito,M., Kawai,J.", Konno,H., Kouda

"M., Koya,S., Matsuyama,T., Miyazaki,A., Nomura,K., Ohno,M.,

Okazaki,Y., Okido,T., Saito,R., Sakai,C., Sakai,K., Sano,H., Sasaki,D., Shibata,K., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H.,

Tagami,M., Tagawa,A., Takahashi,F., Takeda,Y., Tanaka,T., Toya,T.,

Muramatsu,M. and Hayashizaki,Y.

RIKEN Mouse ESTS (Arakawa,T., et al. 2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RIKEN integrated sequence analysis (RISA) system--384-format sequencing pipeline with 384 multicapillary sequencer. Genome Res. 10 (11), 1757-1711 (2000) Konno, H., Fukunishi, Y., Shibata, K., Itoh, M., Carninci, P., Sugahara, Y. and Hayashizaki, Y.
Computer-based methods for the mouse full-length cDNA
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URL:http://genome-gsc.riken.go.jp/
Carnincip. Shibata,Y., Hayatsu,N., Sugahara,Y., Shibata,K., Itoh
M., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-length cDNA libraries for rapid discovery of new
genes. Genome Res. .10 (10), 1617-1630 (2000)
wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
Watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Marsuura
S., Kawai,Y.
                                                                                                  EST 31-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute The Institute of Physical and Chemical Research (RIKEN) 1-7-22 Suehiro-cho, Turumi-ku, Yokohama, Kanagawa 230-0045, Japan
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/clone_lib="RIKEN full-length enriched, 0 day neonate
thymus"
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ВВ636311 RIKEN full-length enriched, 0 day neonate thymus Mus
musculus cDNA clone A430109E24 5', mRNA sequence.
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/dev_stage="0 day neonate"
/lab_host="DH10B"
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/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (2001)
Contact: Yoshihide Hayashizaki
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Fax: 81-45-503-9216
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BE534295 521 bp mRNA linear EST 09-AUG-2000 601235354F1 NCI_CGAP_Mam6 Mus musculus cDNA clone IMAGE:3599004 5',
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NIH-WGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                     121 agtaatgaaccatcctgactacaagctgaaccttcggtctccgggggaccccagaggtgt 180
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Tissue Procurement: Jeffrey Green M.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
                                                                                                                                                                                                                          241 caagtccatgcgagggaagaaaaagagcatatttgaaacctacatgtccaaggaggatgt 300
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/clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating ductal carcinoma"
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/strain="FVB/N"
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Konno, H., Fukunishi, Y., Shibata, K., Itoh, M., Carninci, P., Sugahara Konno, H., Fukunishi, Y., Shibata, K., Itoh, M., Carninci, P., Sugahara Computer-based methods for the mouse full-length cDNA encyclopedia: real-time sequence clustering for construction of a norredundant cDNA library. Genome Res. 11 (2), 281-289 (2001)

Yamanaka, I., Kiyosawa, H., Kondo, S., Saito, T., Shinagawa, A., Aizawa ishii, Y. and Hayashizaki, Y. Itoh, M., Kawai, J., Shibata, K., Arakawa, T., Mapping of 19032 mouse cDNAs on mouse chromosomes. J. Struct.

Func. Genomics 2 pre, L72-186 (2001)

Please visit our web site (http://genome.gsc.riken.go.jp) for further details.
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Contact: Yoshihide Hayashizaki
Contact: Yoshihide Hayashizaki
Contact: Yoshihide Hayashizaki
Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic
Sciences Center(GSC), Yochama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suebiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-922
Fax: 81-45-503-922
F
Okazaki,Y., Okido,T., Saito,R., Sakai,C., Sakai,K., Sano,H., Sasaki,D., Shibata,K., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagami,M., Tagawa,A., Takahashi,F., Takeda,Y., Tanaka,T., Toya,T., Muzamatsu,M. and Hayashizaki,Y.
RIKEN Mouse ESTS (Arakawa,T., et al. 2001)
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 506)
NIH WGC http://mgc.nci.nih.gov/.
NIH WGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
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Site_2: Not!; Cloned unidirectionally. Primer: Oligo d
Library constructed by Life Technologies. Investigator
providing samples: Jeffrey Green, M.D., NIH"
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Contact: Robert Strausberg, Ph.D.
Email: capabs-r@mail.nih.gap.
Tissue Procurement: Gilbert Smith, Ph.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.B. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at:
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Email: cgapbs-rémail.nih.gov
Tissue Procurement: Lothar Hennighausen Ph.D., Robin Humphreys
cDNR Library Preparation: Life Technologies, Inc.
cDNR Library Arrayed by: The I.M.A.G.E. Consortium (LINL)
DNR Sequencing by: Incyte Genomics, Inc.
clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LINL at:
http://image.lln.gov
Plate: LiAM6511 row: n column: 10
High quality sequence stop: 569.
Location/Qualifiers
I. 622

Location/Qualifiers
Irce
//crai.e.Ms musculus"
                                                                                                                                                                                                                                                        /note="Organ: mammary; Vector: pCNV-SPORT6; Site_1: Sall; Site_2: Not1; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Robin Humphreys,
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/clone=lib="NCI_CGAP_Mam5"
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99.8%; Pred. No. 1.5e-118;
clve 0; Mismatches 0;
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vj50ell.x1 Stratagene mouse heart (#937316) Mus musculus cDNA clone
IMAGE:932492 3' similar to WP:F48EB.6 CE02758 SSD1 PROTEIN ;, mRNA
       EST 21-APR-1999
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Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Marta, M., Elliter, E., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., The Washbratch, R. and Wilson, R.

The Washbratch Mass Myashbratch Marra Myashbratch Myashbra
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/lab.host="Sourk (Kanamycin resistant)"
/note="Organ: heart; Vector: pBluescript SK-; Site_1:
/note="Organ: heart; Vector: heart; Vector: heart; Note: heart;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This clone was previously sequenced on the 5' end only, this new data is from the 3' end
Possible reversed clone: similarity on wrong strand
Possible reversed clone: polyf not found
High quality sequence stop: 411.
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This clone is available royalty-free through LLNL ; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
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S NIH-MGC http://mgc.nci.nih.gov/.

NIH-MGC http://mgc.nci.nih.gov/.

NIH-MGC http://mgc.nci.nih.gov/.

NIH-MGC http://mgc.nci.nih.gov/.

Ontacin Institutes of Health, Mammalian Gene Collection (MGC)

Contact: Robert Strausberg, Ph.D.

Contact
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BE380350 EB380350 GI:9325715
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/dev_stage="lo months, virgin"
/lab_host="DH10B"
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Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT.
Library constructed by Life Technologies. Investigator
Library constructed by Life Technologies. Investigator
providing samples: Gilbert Smith, NIH"
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Plate: LLAM8782 row: l column: 04
High quality sequence stop: 442.
Location/Qualifiers
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/db_xref="taxon:10090"
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9 BB654969 RIKEN full

3 UI-BW1-amt-h-01-0

5 BB761195 RIKEN full

4 602534634F1 NIH MGC

6 BB750526 RIKEN full
602593412F1 NIH_MGC
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S NIH-MGC http://mgc.nci.nih.gov/.
Mational Institutes of Health, Mammalian Gene Collection (MGC)
Upubblished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-rémail.nih.gov
Tissue Procurement: Gilbert Smith, Ph.D.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LiAMRSIZ row: d coluum: 03
High quality sequence stop: 596.
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musimae; Mus
                        BI185582 UBB654969 BBF513673 UBB761195 BB788694 BB750526 
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length: 199
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Percent Identity: 100.000
  5.1e-39
4.1e-34
4.0e-32
4.2e-32
6.3e-32
1.0e-30
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .725 //organism="Mus musculus"
  866.50
778.41
742.67
742.45
739.20
717.40
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                                                                                                                                                                                                                                                                                                                                                                               BE380437.1 GI:9325802
     48.00
43.00
41.00
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Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x BE380437
                                                                                                                                                                                                         seq_name: gb_est2:BE380437
                                                                                                                                                                                                                                                                                                                               mRNA sequence.
BE380437
                                                                                                                                                                                                                                                         seg_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                    house mouse.
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BE684505 185915 MARC 4BOV Bos t
AZ401686 1M0168N03R Mouse 10kb
AW785775 117208 MARC 1FIG SUS 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BI344672 373199 MARC 2PIG SUS S
BR408280 UT R-CAL-bis-e-02-0-01
BR31861331 60158271,0F1 MTH_MGC_7
BG106547 602290354F1 NTH_MGC_8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BF979456 602288005F1 NIH MGC
BB620465 BB620465 RIKEN full-1
BB037094 BB037094 RIKEN full-1
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                                                                                                                                                                                                         -MODEL-frame+_p2n.model -DEV=x1h
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                                                                                                             Results were produced by the GenCore Copyright (c) 1993-2000 Compugen Ltd.
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1410.96
1330.94
1260.31
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1204.14
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Database length: -1841457050
Search time (sec): 1636.090000
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                                                                                                                About: Results were produced
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Query: US-09-647-377-9
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Site_2: Not1; Cloned unidirectionally. Primer: Oligo dT.
Library constructed by Life Technologies. Investigator
providing samplass: Jeffrey Green, M.D., NHH"
50 a 206 c 169 g 144 t 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            522 luValHisGlnAlaValLeuAsnLeuHisSerIleAlaLysGlnLeuArg 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51 GATCCCTGAGGAAGAGCTTCCCCCAATTCTCCAGAGCACAGCGTCGAGG 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 539 ArgGlnArgPheValAspGlyAlaLeuArgLeuAspGlnLeuLysLeuAl 555
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          201 TITACICTGGACCATGAGACTGGATTGCCTCAAGGATGTCACATCTATG 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   572 luTyrArgAspSerAsnLysLeuValGluGluPheMetLeuLeuAlaAsn 588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           589 MetAlaValAlaHisLySIlePheArgThrPheProGluGlnAlaLeuLe 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              489 LysLeuSerTyrAspHisAlaGlnSerMetIleGluAsnProThrGluLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sIleProGluGluGluLeuProProIleSerProGluHisSerValGluG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        639 AsnLysSerLeuThrLysThrPheGlyAspAspLysTyrSerLeuAlaAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gLysGluValLeuThrAsnMetTyrSerArgProMetGlnMetAlaLeuT
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Gaps: 0
Percent Identity: 100.000
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Percent Similarity: 100.000
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                                                                                                                                                                                                                                                                                                             ORIGIN
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LOCUS
BF456541

BF456541

DEFINITION UZ67f12.y1 NCI_CGAP_Mam6 Mus musculus cDNA clone IMAGE:3674159 5'
similar to SW:YR86_CAEEL Q09568 HYPOTHETICAL 93.7 KDA PROPEIN
F48E8 6 IN CHROMOSOME III. [2] SW:YR86_CAEEL ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Robert Strausberg, Ph.D.
Email: cgapbs-remail.nih.gov
Tissue Procurement: Jeffrey Green M.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NCI-CGAP clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
image.llnl.gov/image/html/iresources.shtml
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia! Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 681).

NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
229 ysserAlaLysValValTyrIleLeuGluLysLysHisSerArgAlaAla 245
                                                                                                                                                                                                                                                                                                                                           roLeuLysAspCysProGlnAspPheMetThrArgProLysAspPheAla 295
                                                                                                                                                                                                                                                                                                                                                                                                                              450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              296 AsnThrLeuPhelleCysArgIleIleAspTrpLysGluAspCysAsnPh 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       eAlaLeuGlyGlnLeuAlaLysSerLeuGlyGlnAlaGlyGluIleGluP 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196 ProAspArgGlyLysGluAspSerSerThrProValMetLysAspGluAs
                                                                                                                                                                                                                                                     ThrGlylleLeuLysLeuLeuAlaAspLysAsnSerAspLeuPheLysLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sTyrAlaLeuPheSerProSerAspHisArgValProArgIleTyrValP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   High quality sequence stop: 440.
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Unpublished (1997)
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ESI.

ORGANISM

SOURCE

REFERENCE AUTHORS TITLE

JOURNAL

ACCESSION VERSION KEYWORDS

20

622 400 638 672

source

FEATURES

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517 uHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSerIleA 534
                                                                                                                         534 laLysGlnLeuArgArgGlnArgPheValAspGlyAlaLeuArgLeuAsp 550
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3223-16 Mouse E14.5 retina lambda ZAP II Library Mus musculus CDNA,
                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 600)
Mu,X., Zhao,S., Pershad,R., Hsieh,T.-F., Scarpa,A., Wang,S.W., White,R.A., Beremand,P.D., Thomas,T.L., Gan,L. and Klein,W.H. Gene expression in the developing mouse retina by EST sequencing
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171 c 149 g 137 t
                                                                                                                                                                                                                                                                                                                                                                                          Department of Biochemistry and Molecular Biology University of Texas M.D. Anderson Cancer Center Box 117, 1515 Holcombe Blvd., Houston, TX 77030, USA Tel: 713 792 3646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      484 leArgSerCysThrLysLeuSerTyrAspHisAlaGlnSerMetIleGlu 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sLeuThrProGluGlyLysileLeuGluGluTrpPheGlyArgThrIleI 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  102 GCTGACCCCTGAAGGCAAGATCCTTGAAGAGTGGTTTGGCCGCACTATCA 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         434 euValGlnLysValValProMetLeuProArgLeuLeuCysGluGluLeu 450
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         401 ThrPheGluValGlyValHisIleAlaAspValSerTyrPheValProGl 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 ACCTTCGAAGTGGGCGTCCACATCGCCGATGTGAGTTACTTTGTTCCTGA
                                                                                                                                                                                                                                                                                                                                               and microarray analysis
Nucleic Acids Res. 29 (24), 4983-4993 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps: 1
Percent Identity: 99.500
   ACTICIGCICIGGGAIGCIGCAGGACCAAGAGCAG 585
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                                                                                                                                                BI988256
BI988256.1 GI:17959235
                                                                                                                                                                                                                                                                                                                                                                                    Contact: Klein WH
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0.935
99.500
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US-09-647-377-9 x BI988256
                                        seg_name: gb_est2:BI988256
                                                                                                                                mRNA sequence.
                                                                              seq_documentation_block:
LOCUS BI988256
                                                                                                                                                                                                                      Mus musculus
                                                                                                                                                                                                         house mouse.
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Percent Similarity:
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VERSION
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ORIGIN
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                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
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/note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT. Average insert 2.5 kb. Library constructed by Life Technologies, catalog # 12018-016. Investigators providing samples: Lothar Hennighausen/Priscilla Furth, NIH Reference for transgenic model: Li et al., Cell Growth and Differentiation 7, 3-11 (1996). Note: this is a NCI_GGAP
                                                                                                                                                                                                                                                                                                                                                                    house mouse.

Mus musculus

Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 682)

NIH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAM1890 row: m column: 22
High quality sequence stop: 682.
Location/Qualifiers

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//Clone="Misse:5350461"
//Clone="Misse:5350461"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Lothar Hennighausen Ph.D., Priscilla Furth
Ph.D.
                                                                                                  1 others
                                                                                                                                                                                                                                   584 MetLeuLeuAlaAsnMetAlaValAlaHisLysIlePheArgThrPhe 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="tumor, gross tissue"
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                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA sequence.
B1661242
B1661242.1 GI:15575478
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alignment_scores:
                                                                                                                                                      source
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ORIGIN
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Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Bukaryota; Metazoa; Rodentia; Sciurognathi; Muridae; Murinae; Mus
1 (bases 1 to 695)
NTH-MGC http://mgc.nci.nih.gov/.
National institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                            TCCAAGGAGGATGTTTCAGAAGGCTTGAAGAGAGAAGAAGAACACTATCCAGGG 305
                                                                                                                                                                                                                                                                                                                                                                                              121 pLysAlaValLysProGluSerAsnAspLysGluIleGluAlaThrTyrG 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         105 AlaLeuAsnGlyAspLeuValValLysLeuLeuProGluAspGlnTr 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            138 lualaaspileProGluGluGlyCysGlyHisHisProLeuGlnGlnSer 154
                                                                                                                                          5 AspTyrLysLeuAsnLeuArgSerProGlyThrProArgGlyValSerSe 21
                                                                                                                                                                                                      21 rValValGlyProSerAlaValGlyAlaSerProGlyAspLysLysSerL 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155 ArglysGlyTrpSerGlyProAspVallleIleGlualaGlnPheAspAs 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    71
                                                                                                                                                                                                                                                                    38 ysAsnLysSerMetArgGlyLysLysLysSerIlePheGluThrTyrMet
                                                                                                                                                                                                                                                                                                                                55 SerLysGluAspValSerGluGlyLeuLysArgGlyThrLeuIleGlnGl
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Gilbert Smith, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           171 pSerAspSerGluAspArgHisGlyAsnThrSer 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                606 CAGCGACTCAGAAGATAGACATGGCAACACCAGT 639
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                                                                                                             Align seg 1/1 to: BI661242
Quality: 178.00
Ratio: 1.000
Percent Similarity: 100.000
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                                                               alignment_block:
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AUTHORS
TITLE
JOURNAL
COMMENT
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KEYWORDS
SOURCE
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1. .695
// Organism="Mus musculus"
// Strain="FVB/N="
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// Iab_h
cDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAMI1042 row: h column: 06
High quality sequence stop: 689.
Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                roGluAspGlnTrpLysAlaValLysProGluSerAsnAspLysGluIle 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MetAsnHisProAspTyrLysLeuAsnLeuArgSerProGlyThrProAr 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17 gGlyValSerSerValValGlyProSerAlaValGlyAlaSerProGlyA 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 84
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Gaps: 1
Percent Identity: 99.471
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Ratio: 0.931
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US-09-647-377-9 x BI078196
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Percent Similarity:
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BI650394 112-SEP-2001 603296125F1 NIH_CGAP_Mam3 Mus musculus cDNA clone IMAGE:5336719 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: Sall; Cloned unidirectionally. Primer: Oligo dT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 1158)
NIH-WGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (WGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Ph.D.

Contact: Robert Strausberg, Ph.D.

Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Lothar Hennighausen Ph.D., Chu-Xia Deng Ph.D

Tissue Procurement: Lothar Hennighausen Ph.D., Chu-Xia Deng Ph.D

CDNA Library Preparation: Life Technologies, Inc.

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LINL)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:

http://image.llnl.gov

Plate: LLAMI1855 row: column: 08

High quality sequence stop: 762.
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                                                                                                                                                                                                                                                                                                                                                                                                                                375 spCys1lePheThrIleAspProSerThrAlaArgAspLeuAspAspAla 391
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BI650394.1 GI:15564630
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BI650394
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                                                                                                                                                                                                                                                                                                                                                                            BES34295 521 bp mRNA linear EST 09-AUG-2000 601235354F1 NCI_CGAP_Mam6 Mus musculus cDNA clone IMAGE:3599004 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: Sall; Site_2: Not1; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigator providing samples: Jeffrey Green, M.D., NIH"
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Gaps: 0
Percent Identity: 100.000
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Percent Similarity: 100.000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quality: 159.00
                                                                                                                                                        184 LeuValAspGlyVal 188
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US-09-647-377-9 x BE534295
                                                                                                                                                                                                        seq_name: gb_est2:BE534295
                                                                                                                                                                                                                                                                                                 mRNA sequence.
                                                                                                                                                                                                                                         seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                    house mouse
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Ph.D.

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Average insert 2 kb. Library constructed by Life
Technologies, catalog #12017-018. Investigators providing
samples: Lothar Hennighausen/Chu-Xia Deng, NIH Reference
for transgenic model: Xu et al., Nature Genetics 22, 37-43
(1999). Note: this is a NCI_CGAP Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           444 bp mRNA linear EST 21-JUL-2000 601270414F1 NCI_CGAP_Maml Mus musculus cDNA clone IMAGE:3599763 5', BE380350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
1 (bases 1 to 444)
                                                                                                                                                                                                                                                                                                                        101 AlaArgAsnArgAlaLeuAsnGlyAspLeuValValValLysLeuLeuPr 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MetAsnHisProAspTyrLysLeuAsnLeuArgSerProGlyThrProAr 17
                                                                                                                                                                                                                                                                                                                                                                   17 gGlyValSerSerValValGlyProSerAlaValGlyAlaSerProGlyA 34
                                                                                                                                                                                                                                                                                                                                                                                                                                    34 spLysLysSerLysAsnLysSerMetArgGlyLysLysLysSerllePhe 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 51 GluThrTyrMetSerLysGluAspValSerGluGlyLeuLysArgGlyTh 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rLeuIleGlnGlyValLeuArgIleAsnProLysLysPheHisGluAlaP
                                                                                                                                                              Length: 158
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                              to: 1158
                                                                                                                                                                                                                                                                          from: 1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                581 CTGCAGCAGTCCCGGAAAGGCTGG 604
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                                                                                                                                                         Quality: 158.00
Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x BI650394
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Mus musculus
                                                                              351
                                                                                                                                           alignment_scores:
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NIH-WGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-rémail.nih.gov
Tissue Procurement: Gilbert Smith, Ph.D.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAMGY82 row: 1 column: 04
High quality sequence stop: 442.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: Sall; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dr. Library constructed by Life Technologies. Investigator providing samples: Gilbert Smith, NIH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  227 LeuGlnLysSerAlaLysValValTyrIleLeuGluLysLysHisSerAr 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     243 gAlaAlaThrGlyIleLeuLysLeuLeuAlaAspLysAsnSerAspLeuP 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             52 AGCAGCAACTGGCATCCTGAAACTCTTGGCTGATAAGAACAGTGACCTGT 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    heLysLysTyrAlaLeuPheSerProSerAspHisArgValProArgIle 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              102 TTAAGAAATACGCCCTGTTTTCTCCTTCAGACCACGAGTACCTAGAATT 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                277 TyrvalProLeuLysAspCysProGlnAspPheMetThrArgProLysAs 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPheAlaAsnThrLeuPheIleCysArgIleIleAspTrpLysGluAspC 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            310 ysAsnPheAlaLeuGlyGlnLeuAlaLysSerLeuGlyGlnAlaGlyGlu 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       343
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /Clone="IMAGE:3599763"
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/tlssue_type="tumor, biopsy sample"
/dev_staqe="10 months, virgin"
/lab_host="DH10B"
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Ratio: 1.000 Gaps: 0
Percent Similarity: 100.000 Percent Identity: 100.000
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                                                                                                                                                                                                                                                                                                                                                                            1. .444
/organism="Mus musculus"
/strain="FVB/N"
/db_xref="taxon:10090"
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US-09-647-377-9 x BE380350
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254

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/note-forgan mammary; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT. Average insert 2.5 kb. Library constructed by Life Technologies, catalog # 12018-016. Investigators providing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BG864079 701 bp mRNA linear EST 29-WAY-2001 602797865F1 NIH_CGAP_Mam4 Mus musculus cDNA clone IMAGE:4918576 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus Eukarzoa; Chordata; Craniata; Vertebrata; Euteleostomi; Bukaryota; Metazoa; Chordata; Sciurognathi; Muridae; Musinae; Mus. 1 (bases 1 to 701)

NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC) Unpublished (1999)

Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Lothar Hennighausen Ph.D., Priscilla Furth
Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             con Library Preparation: Life Technologies, Inc.
con Library Arrayed by: The I M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://mage.llnl.gov
http://mage.llnl.gov
High quality sequence stop: 701.
Location/Qualifiers
1...701
//organism="Mus musculus"
                                                                                                                                                                           gPheGlyValGlnLysArgIleTyrCysAsnAlaLeuAlaLeuArgSerT 803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sCysAsnAspArgArgMetAlaSerLysArgValGlnGluLeuSerIleG 753
770 AlametValmetGlyValLeuAsnGlnAlaPheAspValLeuValLeuAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                            803 yrSerPheGlnLysValGlyLysLysProGluLeuThrLeuValTrpGlu
                                                                                                                 155 GCCATGGTGATGGGTGTCCTGAACCAAGCTTTCGACGTGCTGGTGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                        205 CTTTGGGGTGCAGAAGCGCATCTACTGCAATGCACTGGCCCTGCGATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="NIH_CGAP_Mam4"
/tissue_type="tumor, gross tissue"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     836 rLeuValAspValValLeuGlnAlaGluAla 846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             355 CCTGGTGGATGTGGTCCTGCAGGCAGAGGCA 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:10090"
/clone="IMAGE:4918576"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_name: gb_est2:BG864079
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       720
                                                                                              36
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (AATTCCGATCCTTC], digested with Not I and cloned into the Not I and Eco RI sites of the modified pr723 vector. Library constructed by Bob Barstead. The C2C12 cell line (available from ATCC, catalog # CRC-1772) differentiates rapidly, forming contractile myotubes and producing characteristic muscle proteins.
                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. I (Dases 1 to 494)
Marra, M., Hillier L., Allen, M., Bowles, M., Dietrich, N., Dubuque, T., Geisel, S., Kucaba, T., Lacy, M., Le, M., Martin, J., Morris, M., Steptoe, M., Tan, F., Underwood, K., Moore, B., Theisiang, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and Waterston, R.
                                                                                                                                                                                       AA756851 494 bp mRNA linear EST 21-JAN-1998 vu20c02.rl Barstead mouse myotubes MPLRB5 Mus musculus cDNA clone IMAGE:1181186 5' similar to WP:F48E8.6 CE02758 SSD1 PROTEIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The Wash-HMI Mouse EST Project Unpublished (1996)
Contact: Marra MXMouse EST Project
Wash-HMI Mouse EST Project
Wash-HMI Mouse EST Project
Wash-HMI Wouse EST Project
Wash-HMI Sold Mill Wouse EST Project
Wash Forest Park Parkway, Box 8501, St. Louis, MO 63108
Fax: 314 286 1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /strain="C3H"
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/clone="IMAGE:1181186"
/clone_lib="Barstead mouse myotubes MPLRB5"
/cell_line="C2C12"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sed primer: -28ml3 rev2 ET from Amersham High quality sequence stop: 493.
Location/Qualifiers
1. -494
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                                                                                                                                                                                                                                                                                                    AA756851.1 GI:2801853
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US-09-647-377-9 x AA756851
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Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
Plate: LLAM9128 row: k column: 18
High quality sequence stop: 506.
Location/Qualifiers
I. : 506
/organism="Mus. musculus"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quality: 122.00
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                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                   FEATURES
samples: Lothar Hennighausen/Priscilla Furth, NIH
Reference for transgenic model: Li et al., Cell Growth and
Differentiation 7, 3-11 (1996). Note: this is a NCI_CGAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq_documentation_block:
LOCUS BE910893
DEFINITION 601661970F1 NCI_CGAP_Mam1 Mus musculus cDNA clone IMAGE:3962249 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 506)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-rémail.nil.gov
Tissue Procurement: Gilbert Smith, Ph.D.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LINL)
                                                                                                                                                                                                                                                                                                                            361 leProProAspGluValGlyLysArgArgAspLeuArgLysAspCysIle 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   394 sArgArgLeuThrAspGlyThrPheGluValGlyValHisIleAlaAspV 411
                                                                                                                                                                                                                                                                                                                                                                                                                            411 alSerTyrPheValProGluGlySerSerLeuAspLysValAlaAlaGlu 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       344 pPheSerSerGluValLeuGluCysLeuProGlnSerLeuProTrpThrI 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             428 ArgAlaThrSerValTyrLeuValGlnLysValValProMetLeuProAr 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 102 AGAGCCACAAGTGTCTACTTGGTCCAGAAGGTGGTCCCCATGCTTCCCAG 351
                                                                                                                                                                   Length: 126
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA Sequencing by: Incyte Genomics, Inc.
                                                                           162 t
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BE910893
BE910893.1 GI:10407877
                                                     Library."
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Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                            Align seg 1/1 to: BG864079
                                                                                                                                                                                                                                                   US-09-647-377-9 x BG864079
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/clone="ltaxon:1090"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BB636311 RIKEN full-length enriched, 0 day neonate thymus Mus musculus cDNa clone A430109E24 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84 helleProSerProAspGlyAspArgAspIlePhelleAspGlyValVal 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101 AlaArgAsnArgAlaLeuAsnGlyAspLeuValValValLysLeuLeuPr 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51 GluThrTyrMetSerLysGluAspValSerGluGlyLeuLysArgGlyTh 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67 rLeuIleGlnGlyValLeuArgIleAsnProLysLysPheHisGluAlaP 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 MetAsnHisProAspTyrLysLeuAsnLeuArgSerProGlyThrProAr
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BB636311.1 GI:15400918
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SM Mus musculus.

Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi; Bukaryota; Metazoa; Chordata; Sciurognathi; Muridae; Murinae; Mus.

Mammalia; Butheria; Rodentia; Sciurognathi; Muridae; Mus.

E 1 (bases 1 to 692)

Arakaa,T., Carninci,P., Fukuda,S., Furuno,M., Hanagaki,T., Hara,A., Hiramoto,K., Hori,F., Ishii,Y., Ito,M., Kawai,J., Konno,H., Kouda,M., Koya,S., Matsuyama,T., Miyazaki,A., Nomura,K., Ohno,M., Okazaki,Y., Okido,T., Saito,R., Sakai,C., Sakai,K., Sano,H., Sasaki,J., Shinagawa,A., Takahashi,F., Takeda,Y., Suzuki,H., Muramatsu,M. and Haysshizaki,Y.

RIKEN Mouse ESTS (Arakawa,T., et al. 2001)

L Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BB615143 RIKEN full-length enriched, adult male testis Mus musculus CDNA clone 4930429A22 5', mRNA sequence.
3']. cDNA was cleaved with XhoI and BamHI. Vector: a modified pBluescript KS(+) after bulk excision from Lambda
                                                                                                                                                                                                                                                                                                                                                                                        84 helleProSerProAspGlyAspArgAspIlePhelleAspGlyValVal 100
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                                                                  1 others
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                                                                  160 t
                                                                                                                                                                                                Gaps:
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                                                                  182 g
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                                                                  146 c
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Percent Similarity: 100.000
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US-09-647-377-9 x BB636311
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NYERN integrated sequence analysis (RISA) system--384-format sequencing pipeline with 384 multicapillary sequencer. Genome Res. 10 (11), 175-171 (2000)

Nonno, H., Fukunishi, Y., Shibata, K., Itoh, M., Carninci, P., Sugahara, Y. and Hayashizaki, Y.

Computer-based methods for the mouse full-length cDNA encyclopedia: real-time sequence clustering for construction of a nonredundant cDNA library. Genome Res. . 11 (2), 281-289 (2001)

Yamanaka, I., Kiyosawa, H., Kondo, S., Saito, T., Shinagawa, A., Aizawa, K., Fukuda, S., Hara, A., Itoh, M., Kawai, J., Shinata, K., Arakawa, T., Ishi, Y. and Hayashizaki, Y.

Mapping of 19032 mouse cDNAs on mouse chromosomes. J. Struct.

Fluc. Genomics 2 pre, L72-186 (2001

Please visit our web site (http://genome.gsc.riken.go.jp) for
                                                             /note="Site_1" Sall; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN, Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGGACGAGAGCTCTTTTTTTTTTTV 3'], CDNA was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: genome-resegsc.riken.go.jp,
URL:http://genome-gsc.riken.go.jp/
Carninol.p., Shibata,Y., Hayataw.N., Sugahara,Y., Shibata,K., Itoh
M., Konno,H., Okazaki,Y., Muramataw.N., and Hayashizaki,Y.
Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-langth cDNA libraries for rapid discovery of new
genes. Genome Res. 10 (10), 1617-1630 (2000)
wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
Watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura
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thymus"
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                                                    ORGANISM
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FEATURES
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Konno, H., Fukunishi, Y., Shibata, K., Itoh, M., Carninci, P., Sugahara, Y. and Hayashizaki, Y.
Computer-based methods for the mouse full-length cDNA encyclopedia: real-time sequence clustering for construction of a nonredundant cDNA library. Genome Res. 11 (2), 281-289 (2001)
Yamanaka, I., Kiyosawa, H., Kondo, S., Saito, T., Shinagawa, A., Aizawa, K., Fkuda, S., Hara, A., Itoh, M., Rawai, J., Shibata, K., Arakawa, T., Mapping of 19032 mouse cDNAs on mouse chromosomes. J. Struct.
Runc. Genomics 2 pre, L72-L86 (2001
Rlase visit our web site (http://genome.gsc.riken.go.jp) for further details.
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URL:http://genome.gsc.riken.go.jp/
Carninci,P., Shibata,Y., Hayatsu,W., Sugahara,Y., Shibata,K., Itoh
M., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-length cDNA libraries for rapid discovery of new
genes. Genome Res. 10 (10), 1617-1630 (2000)
Wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
Watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura
S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira, A. and
Hayashizaki,Y.
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1.7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan Fax: 81-45-503-922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="Site_1: XhoI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was GAGAGAGAAGAGGTCCTATTTTTTTTTVN 3'1, CDNA was
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Gaps: 0
Percent Identity: 100.000
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Ratio: 1.000
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US-09-647-377-9 x BB615143
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to:
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ORIGIN
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AIS97514 Linear EST 21-APR-1999 vj50ell.x1 Stratagene mouse heart (#937316) Mus musculus cDNA clone IMAGE:932492 3' similar to WP:F48E8.6 CE02758 SSD1 PROTEIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  house mouse.
Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (bases 1 to 451)
Marray, M. Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T.,
Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y.,
B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,
F., Kohn,S., Shir,T., Jackson,Y., Cardenas,M., McCann,R.,
Waterston,R., and Wilson,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This clone was previously sequenced on the 5' end only, this new data is from the 3' end
Possible reversed clone: similarity on wrong strand
Possible reversed clone: polyf not found
High quality sequence stop: 411.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information. MGI:537412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (1999)
Contact: Marra M/WashU-NCI Mouse EST Project 1999
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
                                                                                           84 helleProSerProAspGlyAspArgAspIlePhelleAspGlyValVal 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101 AlaArgAsnArgAlaLeuAsnGlyAspLeuValValValLysLeuLeuPr 117
17 gGlyvalSerSerValValGlyProSerAlaValGlyAlaSerProGlyA 34
                                                                                                                                                           34 spLysLysSerLysAsnLysSerMetArgGlyLysLysLysSerIlePhe 50
                                                                                                                                                                                                                                                                                                                                               67 rLeuIleGlnGlyValLeuArgIleAsnProLysLysPheHisGluAlaP 84
                                                                                                                                                                                                                                                      51 GluThrTyrMetSerLysGluAspValSerGluGlyLeuLysArgGlyTh 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Mus musculus"
/strain="NIH/Swiss"
/db_xref="taxon:10090"
/clone="IMAGE:932492"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    117 oGluAspGlnTrpLys 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                492 TGAGGATCAGTGGAAG 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_name: gb_est1:AI597514
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LOCUS AI597514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sednence.
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VERSION
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JOURNAL
COMMENT
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AUTHORS
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source
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ORIGIN
                                                                            FEATURES
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0244-55 Mouse E14.5 retina lambda ZAP II Library Mus musculus CDNA,
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Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 600)

Mu.X., Zhoo,S., Pershad,R., Hsieh,T.-F., Scarpa,A., Wang,S.W.,

White,R.A., Beremand,P.D., Thomas,T.L., Gan,L. and Klein,W.H.

Gene expression in the developing mouse retina by EST sequencing
and microarray analysis

Nucleic Acids Res. 29 (24), 4983-4993 (2001)
                                       /clone_lib="Stratagene mouse heart (#937316)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             84 helleProSerProAspGlyAspArgAspIlePhelleAspGlyValVal 100
                                                                                                                                                                                                                                                                                                                                                                                                           254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 255 GAAACCTACATGTCCAAGGAGGATGTTTCAGAAGGCTTGAAGAGAGGAAC 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        51 GluThrTyrMetSerLysGluAspValSerGluGlyLeuLysArgGlyTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34 spLysLysSerLysAsnLysSerMetArgGlyLysLysLysSerIlePhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rLeuIleGlnGlyValLeuArgIleAsnProLysLysPheHisGluAlaP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length: 115
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                               from: 1 to: 451
                            /tissue_type="heart"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BG804017.1 GI:17950931
                                                                                                                                                                                                                                                                                                                                                             Align seg 1/1 to: AI597514
                                                                                                                                                                                                                                    alignment_scores:
Quality: 115.00
                                                                                                                                                                                                                                                                   Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AI597514
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                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST.
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KEYWORDS
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ORGANISM
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COMMENT
                                                                                                                                                                        BASE COUNT
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/clone_lib="Mouse E14.5 retina lambda ZAP II Library"
/tissue_type="neural retina"
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Department of Biochemistry and Molecular Biology
University of Texas M.D. Anderson Cancer Center
Box 117, 1515 Holcombe Blvd., Houston, TX 77030, USA
THI: 713 792 3646
Fax: 713 790 0329.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           329 TACTCTGGACCATGAGACTGGATTGCCTCAAGGATGTCACATCTATGAGT 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540 GlnArgPheValAspGlyAlaLeuArgLeuAspGlnLeuLysLeuAlaPh 556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129 CTGAGCTACGACCATGCCCAGAGCATGATCGAAAATCCAACTGAGAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               179 CCCTGAGGAAGAGCTTCCCCCAATTTCTCCAGAGCACAGCGTCGAGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               229 TGCACCAGGCAGTCCTGAACCTGCACAGCATTGCAAAGCAACTCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           556 eThrLeuAspHisGluThrGlyLeuProGlnGlyCysHisIleTyrGluT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   573 yrArgAspSerAsnLysLeuValGluGluPheMetLeuLeuAlaAsnMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           490 LeuSerTyrAspHisAlaGlnSerMetIleGluAsnProThrGluLysIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              506 eProGluGluLeuProProIleSerProGluHisSerValGluGluV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   523 alHisGlnAlaValLeuAsnLeuHisSerIleAlaLysGlnLeuArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length: 109
Gaps: 0
Percent Identity: 100.000
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                                                                                                                                    Location/Qualifiers
1. .600
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     429 GCGGTGGCCCACAAGATCTTCCGCACC 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality: 109.00
Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x BG804017
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BE047956 dc85g10.y1 NICHD XG
AL662277 AL662277 XGC-neurul
BE886139 G01509925F1 NIH_MGC,
BB6516311 BB636311 RIKEN full
BI848955 471556 MARC 2BOV BO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon.g606"
/db_xref="taxon.g606"
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/tissue_type="small cell carcinoma"
/tisb_most="MGC3"
/lab_host="MHG06"
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/lab_host="MHG0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BE791331 887 bp mRNA linear EST 20-SEP-2000 601582710F1 NIH_MGC_7 Homo sapiens CDNA clone IMAGE:3937083 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         213 rProlleProGlnAspThrArgGlyLeuSerGluLysSerLeuGlnLysS 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                230 eralaLysValValTyrIleLeuGluLysLysHisSerArgAlaAlaThr 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 GAGAAAGGAAGAAGGATGGTGATGCACCGGTTACAAAAGATGAGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps: 2
Percent Identity: 83.448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
      3.0e-62
3.2e-62
8.7e-62
6.1e-59
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/organism="Homo sapiens"
      700.00 1283.58
700.00 1283.13
698.50 1275.28
670.00 1224.24
663.50 1216.09
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BE791331
BE791331.1 GI:10212529
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Ratio: 4.356
nilarity: 94.483
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US-09-647-377-9 x BE791331
                                                                                                                                                                                         seq_name: gb_est2:BE791331
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   gb_est2:BF047956
gb_est1:AL662277
gb_est2:BE886139
gb_est1:BB636311
gb_est2:BI848955
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AUTHORS
TITLE
JOURNAL
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KEYWORDS
SOURCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Documentation | BEP99331 601862210F1 NIH_MGC_7 |
| BER99331 60186210F1 NIH_MGC_7 |
| BER99331 60186210F1 NIH_MGC_17 |
| BER966079 602797865F1 NIH_MGC_17 |
| BG74666 602703970F1 NIH_MGC_47 |
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| BB380437 601270510F1 NIH_MGC_47 |
| BB180437 601270510F1 NIH_MGC_47 |
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| BF18231 601862446F1 NIH_MGC_47 |
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| BF614228 60326612F1 NIH_CGAP_8 |
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| BF198482 248425 MARC 2PIG SUS |
| BF198482 248425 MARC 2PIG SUS |
| BF684605 185915 MARC 2PIG SUS |
| BF684605 185915 MARC 2PIG SUS |
| BF684605 185915 MARC 1PIG SUS |
| BF684605 185916 MARC 1PIG SUS |
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BB620465 RIKEN full-le
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QV4-LT0016-240200-110
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BB620465 B
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                                                                                                                                       version 4.5,
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                   out_format : pfs
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                                                                                                                                 About: Results were produced by the GenCore Copyright (c) 1993-2000 Compugen Ltd.
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gb_est1:AA756851
gb_est2:BG878140
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263

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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae, Homo.

(CE 1 (bases 160 735)

NIH-MGC http://mgc.ncl.nih.gov/.

NIH-MGC http://mgc.ncl.nih.gov/.

Unpublished (1999)

Contact: Robert Strausberg, Ph.D.

Email: capabs-remail.nih.gov

Email: capabs-remail.nih.gov

CDNA Library Preparation: Ling Hong/Rubin Laboratory

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can be fround through the I.M.A.G.E. Consortium/LLNL at:

http://image.llnl.gov

Plate: LLCM1794 row: a column: 05

High quality Sequence stop: 732.

LocationQualifiers

1. 735

1. 735

Clone="IMAGE: 4900492"

//clone="IMAGE: 4900492"

//clone="IMAGE: "Made by oligo-dT priming.

//librare="Image: resistant"

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           394 CysArgArgLeuThrAspGlyThrPheGluValGlyValHisIleAlaAs 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               427 luArgAlaThrSerValTyrLeuValGlnLysValValProMetLeuPro 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 TGCAAGCCACTCGCTGACGCAACTTCAAAGTGGGAGTTCACATTGCTGA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      460 uThrPheSerVallleTrpLysLeuThrProGluGlyLysIleLeuGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  494 HisAlaGlnSerMetIleGluAsnProThrGluLysIleProGluGluGl
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Ratio: 4.903
Percent Similarity: 97.131
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JOURNAL
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                                                                                                                   AUTHORS
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                  296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  313 aLeuGlyGlnLeuAlaLysSerLeuGlyGlnAlaGlyGluIleGluProG 330
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            363 oAspGluValGlyLysArgArgAspLeuArgLysAspCysIlePheThrI 380
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   446 uCysGluGluLeuCysSerLeuAsnProMetThrAspLysLeuThrPheS 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           463 erVallleTrpLysLeuThrProGluGlyLysIleLeuGluGluTrpPhe 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       330 luThrGluGlyIleLeuThrGluTyrGlyValAspPheSerAspPheSer
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EST

VERSION KEYWORDS SOURCE

LOCUS ACCESSION

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                                        carcinoma'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     688
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  672 yrPheCysSerGlyMetLeuGlnAspGlnGluGlnPheArgHisTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuAsnValProLeuTyrThrHisPheThrSerProIleArgArgPheAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                       sIleProGluGluGluLeuProProIleSerProGluHisSerValGluG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             605 uArgArgHisProProProGlnThrLysMetLeuSerAspLeuValGluP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           451 AATAAAAGCCTGACTAAGACATTTGGAGATGACAAGTACTCTCTGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             655 gLysGluValLeuThrAsnMetTyrSerArgProMetGlnMetAlaLeuT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         522 luValHisGlnAlaValLeuAsnLeuHisSerIleAlaLysGlnLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   489 LysLeuSerTyrAspHisAlaGlnSerMetIleGluAsnProThrGluLy
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98.678
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US-09-647-377-9 x BF450541
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Percent Similarity:
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ORIGIN
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LOCUS

BF450541

BF450541

DEFINITION uz67f12.y1 NCI_CGAP_Mam6 Mus musculus cDNA clone IMAGE:3674159 5'

Similar to SW.YR86_CABEL Q09568 HYPOTHETICAL 93.7 KDA PROTEIN

F48E8.6 IN CHROMOSOME III. [2] SW:YR86_CABEL ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Robert Strausberg, Ph.D.
Email: cgapbs-rémail.nih.gov
Tissue Procurement: Jeffrey Green M.D.
Tobn Library Preparation: Life Technologies, Inc.
cDNA Library Arnayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Mashington University Genome Sequencing
Clone distribution: NCI-CGAP clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
image.llnl.gov/image/html/iresources.shtml
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          house mouse.

Mus musculus

Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus

1 (bases 1 to 681)

NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.

National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
Tumor Gene Index

Unpublished (1997)
                                                                                                                                                            403 TCTTGAATCTCCACGGAATTGCCAAGCAGTTACGCCAGCAGCACCTTTGTG 452
                                                                                                                                                                                                               560
                                                                                                                                                                                                                                     560 sGluThrGlyLeuProGlnGlyCysHisIleTyrGluTyrArgAspSerA 577
                                                                                                                                                                                                                                                                                                                                                                                                      602
                                                                                                                                                                                                                                                                                                                                                                                                                                         610
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                                                                                                                                                                                                                                                                                                               LysllePheArgThrPheProGluGlnAlaLeuLeuArgArgHisProPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                               510 uLeuProProIleSerProGluHisSerValGluGluValHisGlnAlaV
                                                                                   snLysLeuValGluGluPheMetLeuLeuAlaAsnMetAlaValAlaHis
                                                                                                                                          alLeuAsnLeuHisSerIleAlaLysGlnLeuArgArgGlnArgPheVal
                                                                                                                                                                                                                   AspGlyAlaLeuArgLeuAspGlnLeuLysLeuAlaPheThrLeuAspHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Mus musculus"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               627 lyLeuProMetAspValSerSerAlaGlyAla 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seq primer: -40kP 110m closed thigh quality sequence stop: 440.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BF450541
BF450541.1 GI:11516710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq_name: gb_est2:BF450541
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KEYWORDS
SOURCE
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394 sArgArgLeuThrAspGlyThrPheGluValGlyValHisIleAlaAspV 411
                                                                                                                                                                                                        152 TTCACCATTGATCCATCAACTGCTCGCGACCTTGATGATGCCCTCGCCTG 201
                                                                                                                                                                                                                                                                                                 461 hrPheSerVallleTrpLysLeuThrProGluGlyLysIleLeuGluGlu 477
                                                                                                                                                                                                                                                                                                                                                                                                                                     428 ArgAlaThrSerValTyrLeuValGlnLysValValProMetLeuProAr 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TrpPheGlyArgThrIleIleArgSerCysThrLysLeuSerTyrAspHi 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         494 sAlaGlnSerMetIleGluAsnProThrGluLysIleProGluGluGluL 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        511 euProProIleSerProGluHisSerValGluGluValHisGlnAlaVal 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        528 LeuAsnLeuHisSerIleAla..LysGlnLeuArgArgGlnArgPheVal 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          544 AspGlyAlaLeuArgLeuAspGlnLeuLysLeuAlaPheThrLeuAsp 559
                                                                                                                                                                human.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Mus musculus"
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Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT.
Average insert 2.5 kb. Library constructed by Life
Technologies, catalog # 12018-016. Investigators providing
samples: Lothar Hennishusen/Priscilla Purth, NIH
Reference for transgenic model: Li et al., Cell Growth and
Differentiation 7, 3-11 (1996). Note: this is a NCL_CGAP
                                                                                                                                                     BG864079 701 bp mRNA linear EST 29-WAY-2001 602797865F1 NIH_CGAP_Mam4 Mus musculus cDNA clone IMAGE:4918576 5',
                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 701)
NIH-MGC http://mgc.nci.nih.gov/
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Lothar Hennighausen Ph.D., Priscilla Furth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    þe
601 CTCAACGTTCCCCTCTACACACTTCACCTCTTCCATCCCGCGCTTTGC 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 GAGCCTGAAACAGAAGGGATACTGACAGAATATGGTGTGGACTTCTCTGA 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               328 GluProGluThrGluGlyIleLeuThrGluTyrGlyValAspPheSerAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps: 1
Percent Identity: 96.996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: BG864079 from: 1 to: 701
                                                 705 aAspValIleValHisArgLeuLeuAlaAla 715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         174 g
                                                                                                                                                                                                                   BG864079.1 GI:14214617
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98.712
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US-09-647-377-9 x BG864079
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                                                                                                                                                                                    mRNA sequence.
BG864079
                                                                                                                                  seq_documentation_block:
LOCUS
BG864079
                                                                                                                                                                                                                                                                       Mus musculus
                                                                                                                                                                                                                                                      house mouse.
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Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_scores
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KEYWORDS
SOURCE
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BG746662 727 bp mRNA linear EST 15-MAY-2001 602703970F1 NIH_MGC_15 Homo sapiens cDNA clone IMAGE:4857353 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 727)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Robert Strausberg, Ph.D.
Email: Gapbs-r@mail.nih.gov
Tissue Procurement: Arc.
CDN Library Preparation: Ling Hong/Rubin Laboratory
CDN Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: NIH Intrammaral Sequencing Center
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
652 AATGGCGCACTCCGTTTAGATCAGTTGAAGCTTGCTTATACTCTGGAC 699
                                                                                                                                                                                                                                                                                                                                       BG746662.1 GI:14057315
                                                                                                  seq_name: gb_est2:BG746662
                                                                                                                                                                                                                                                                      mRNA sequence.
BG746662
                                                                                                                                                                seq_documentation_block:
LOCUS
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source
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                                                                                                                                                                                          /tissuc_type="adenocarcinoma cell line"
/tissuc_type="adenocarcinoma cell line"
/hab_host="DH10B (phage-resistath)"
/hote="Organ: colon; Vector: pOTB7; Site_1: XhoI; Site_2:
/hote="Organ: colon; Vector: pOTB7; Site_1: XhoI; Site_2:
ECORI; cDNA made by oliqo-dr priming. Directionally
cloned into EcoRI/XhoI sites using the following 5'
adaptor: GGCACGGG(G). Size-selected >500bp for average
insert size 1.8Rb. Library constructed by Ling Hong in
the laboratory of Gerald M. Rubin (University of
california, Berkeley) using ZAP-cDNA synthesis kit
(Stratagene) and Superscript II RT (Life Technologies)"
58 a 243 c 194 g 132 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         euasnLysSerLeuThrLysThrPheGlyAspAspLysTyrSerLeuAla 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    521 uGluValHisGlnAlaValLeuAsnLeuHisSerIleAlaLysGlnLeuA 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202 TGAGTACCGCGAGAGCAACAAGCTCGTGGAGGAGTTCATGCTCTTGGCCA 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        302 CTGCGCCGGCACCCCCCGCCCCAACAACAAGGATGCTCAGTGACCTGGTGGA 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      621 uPheCysAspGlnMetGlyLeuProMetAspValSerSerAlaGlyAlaL 638
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          571 rGluTyrArgAspSerAsnLysLeuValGluGluPheMetLeuLeuAlaA 588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          588 snMetAlaValAlaHisLysIlePheArgThrPheProGluGlnAlaLeu 604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  402 TCAATAAAAGCCTGACCCAAACATTTGGAGATGACAAGTACTCACTGGCC 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52 GGAGGTACACCAGGCCGTCTTGAATCTCCACGGAATTGCCAAGCAGTTAC 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  102 GCCAGCAGCGCTTTGTGGACGCGCACTTCGTTTGGATCAGCTAAAGCTT 151
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuArgArgHisProProProGlnThrLysMetLeuSerAspLeuValGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 AAAATCCCTGCGAAAGAGCTGCCCCCCATTTCCCCAGAGCATAGCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rgArgGlnArgPheValAspGlyAlaLeuArgLeuAspGlnLeuLysLeu
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps: 0
Percent Identity: 90.909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
http://image.llnl.gov
Plate: LLCM1709 row: k column: 18
High quality sequence stop: 727.
Location/Qualifiers
1. .727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from: 1 to: 727
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Ratio: 4.970
Percent Similarity: 95.868
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-647-377-9 x BG746662
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_scores:
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                                                                                             source
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                                                                     FEATURES
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BM012844 961 bp mRNA linear EST 30-OCT-2001 603637574F1 NIH_MGC_47 Homo sapiens cDNA clone IMAGE:5459683 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Educator Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 961)

NIH-WGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (WGC)
Conpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
plate: LLCMHJ63 row; d column: 20
High quality sequence stop: 800.
Location/Qualifiers
                                                                                                    705 AlaAspValIleValHisArgLeuLeuAlaAlaAlaLeuGlyTyrSerGl 721
                  602 GCCGACGTCCTGGTGCACCGCCTCCTGGCTGCCGCTTAGGCTATAGGGA 651
                                                                                                                                                                                                                                                   uGlnProAspValGluProAspThrLeuGlnLysGlnAlaAspHisCysA 738
                                                                                                                                                                                                                                                                          688 laLeuAsnValProLeuTyrThrHisPheThrSerProIleArgArgPhe
uTyrPheCysSerGlyMetLeuGlnAspGlnGluGlnPheArgHisTyrA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length: 300
Gaps: 6
Percent Identity: 77.667
                                                                                                                                                                                                                                                                                                                                       738 snAspArgArgMetAlaSerLysArg 746
                                                                                                                                                                                                                                                                                                                                                                 702 ACGACCGCCGTGGGTCTAAGCGC 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BM012844.1 GI:16527198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality: 1114.50
Ratio: 4.303
Percent Similarity: 86.333
                                                                                                                                                                                                                                                                                                                                                                                                                        seq_name: gb_est2:BM012844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA sequence.
BM012844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216
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us-09-647-377-9.p2n.rst

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531
                                                                                                                                                                                                                                                                                                                                                                                                                                                         448 GluGluLeuCysSerLeuAsnProMetThrAspLysLeuThrPheSerVa 464
                                                                                                                                         164 lileTrpLysLeuThrProGluGlyLysIleLeuGluGluTrpPheGlyA 481
                                                                                                                                                            497
                                                                                                                                                                                                                                                                   MetileGluAsnProThrGluLysIleProGluGluGluLeuProProIl 514
                                                                                                                                                                                                                                                                                                                                                                                                   547
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                631 spValSerSerAlaGlyAlaLeuAsnLysSerLeuThrLysThrPheGly 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           664 erArgProMetGlnMetAlaLeu..TyrPheCysSerGlyMetLeuGlnA 680
                                                                                               648 AspAspLysTyrSerLeu.AlaArgLysGluValLeuThrAsnMetTyrS 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  680 spGlnGluGlnPheArgHisTyrAlaLeuAsnValProLeuTyrThrHis 696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 697 PheThrSerProIleArgArgPheAlaAspValIleValHisArgLeuLe 713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        751 ACTICCCICGCCAICCGCGCTITGCGACGICCG. . GIGCACCGCICCIG 797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               G...TGCCGCGTTAGGTATAGGGAGCGACTAAACATGCGCCCG...ATAC 841
                                                                                                                                                                                                                                                                                              151 ATGATTGAAAGCCCCAACTGAGAAATCCCTGCGAAAGAGCTGCCCCCAT
                                                                                                                                                                                                                                                                                                                               eSerProGluHisSerValGluGluValHisGlnAlaValLeuAsnLeuH
                                                                                                                                                                                                                                                                                                                                                   531 isSerIleAlaLysGlnLeuArgArgGlnArgPheValAspGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    564 uProGlnGlyCysHisIleTyrGluTyrArgAspSerAsnLysLeuValG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    598 ThrPheProGluGlnAlaLeuLeuArgArgHisProProProGlnThrLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481 rgThrIleIleArgSerCysThrLysLeuSerTyrAspHisAlaGlnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       713 uAlaAlaAlaLeuGlyTyrSerGluGlnProAspValGluProAspThr.
                                                 from: 1 to: 961
                                               to: BM012844
alignment_block:
US-09-647-377-9 x BM012844
                                               Align seg 1/1
```

498

514

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Exhausce measure.

Exhausces: Motazoa: Chordata; Craniata; Vertebrata; Euteleostomi; Mus musculus

Eukaryota; Motazoa: Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia: Eutheria; Rodentia; Sciurognathi; Muridae; Mus.

Exhausces 1 to 723)

RS INH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)

Unpublished (1999)

Contact: Robert Strausberg, Ph.D.

Contact: Contact: Robert Strausberg, Ph.D.

Contact: Contact: Contact: Consortium (LLNL)

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:

http://image.llnl.gov

Clone distribution: MGC column: 03

High quality sequence stop: 56.

Location/Qualifiers

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/note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dr. Library constructed by Life Technologies. Investigator providines: Gilbert Smith, NIH"

06 a 172 c 179 g 167 t lothers
                                                                                                                         601270510F1 NCI_CGAP_Mam1 Mus musculus cDNA clone IMAGE:3599570 5', BE380437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146 CysGlyHisHisProLeuGlnGlnSerArgLysGlyTrpSerGlyProAs 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
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Gaps: 2
Percent Identity: 93.363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from: 1 to: 725
                                                                                                                                                                                                                                        BE380437.1 GI:9325802
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96.018
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US-09-647-377-9 x BE380437
                                                                                       seq_name: gb_est2:BE380437
                                                                                                                                seq_documentation_block:
                                                                                                                                                                                                                                                                                   house mouse
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                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
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1. .1161
/ Organism="Homo sapiens"
/ db_xref="ttaxon:9666"
/ clone="IMAGE:438412"
/ clone="lib="NHH_MGC_85"
/ clone="Lib="NHH_MGC_85"
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/ lab_host="DH108 (phage-resistant)"
/ note="lorgan: lymph, Vector; pcWv-Sporr6; Site_1: NotI;
Site_2: Sall; cloned unidirectionally; oligo-dT primed.
Average insert size 1.867 kb. Library enriched for full-length clones and constructed by Life Technologies.
Note: this is a NIH_MGC Library."

71 a 291 c 285 g 214 t
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      294 eAlaAsnThrLeuPhelleCysArgIleIleAspTrpLysGluAspCysA 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          344 pPheSerSerGluValLeuGluCysLeuProGlnSerLeuProTrpThrI 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   402 TTCCACCAGAGGAGTTCAGCAAGAGAAGGGATTTAAGAAAAGACTGTATC 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                              251
                                                                                                                                                                                                                                                                                                                                                                                                     244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         102 GGAAATACGCCTGTTTTCTCCCTCAGACCACCGAGTGCCTAGAATTAT 151
                                                                                                                                                                                                                                                                                                                                                                                                                                  51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluProGluThrGluGlyIleLeuThrGluTyrGlyValAspPheSerAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PheThrIleAspProSerThrAlaArgAspLeuAspAspAlaLeuAlaCy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    394 sArgArgLeuThrAspGlyThrPheGluValGlyValHisIleAlaAspV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 CAAAGATCAGCAAAGGTGGTTTACATCTTGGAGAAAAAACATTCTCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             261 ysLysTyrAlaLeuPheSerProSerAspHisArgValProArgIleTyr
                                                                                                                                                                                                                                                                                                                                                                                                     228 GlnLysSerAlaLysValValTyrIleLeuGluLysLysHisSerArgAl
                                                                                                                                                                                                                                                                                Gaps: 1
Percent Identity: 86.752
                                                                                                                                                                                                                                                                 Length:
                                                                                                                                                                                                                                                                                                                                                                         to: 1161
                                                                                                                                                                                                                                                                                                                                                                          from: 1
                                                                                                                                                                                                                                                               Quality: 1072.00
Ratio: 4.764
nilarity: 96.154
                                                                                                                                                                                                                                                                                                                                                                          Align seg 1/1 to: BG106547
                                                                                                                                                                                                                                                                                                                            alignment_block:
US-09-647-377-9 x BG106547
                                                                                                                                                                                                                                                                                               Percent Similarity:
                                                                                                                                                                                       371
                                                                                                                                                                                                                                                     alignment_scores
     source
                                                                                                                                                                                         COUNT
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                                                                                                                                                                                       BASE CO
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1161 bp mRNA linear EST 30-JAN-2001 602290354F1 NIH_MGC_85 Homo sapiens CDNA clone IMAGE:4385412 5', mRNA sequence.
BG106547. GI:12600393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E (bases it of 166)

S NIH-MGC http://mgc.nci.nih.gov/.

NIH-MGC http://mgc.nci.nih.gov/.

L Unpublished (1999)

Contact: Robert Strausberg, Ph.D.

Email: Gapbs-rémail.nih.gov
Tissue Procurement: Louis Staudt, M.D., Ph.D.

CONA Library Arrayed by: The I.M.A.G.E. Consortium (LINL)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LINL at:

http://image.lihl.gov
Plute: LiAMN0066 row: k. column: 13
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Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                 295
                                                                                                                                                                                                                                                                                                                                                                            312
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                                                                                                                                                                                                                                                                                   400
                                                                                                                                                                                                                                                                                                                                                450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerSerGluValLeuGluCysLeuProGlnSerLeuProTrpThrIlePr 362
                                                               229
                                                                                                                                                         300
                                                                                                                                                                                         262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601 TCTTCAGAAGTCTTGAATGTC.....TCCTCANAGCCTGCCGGGACAAA 644
                                                                                                                          AsnThrLeuPhelleCysArgIleIleAspTrpLysGluAspCysAsnPh
                                                                                                                                                                                                                                                                                                                                                                                             ProAspArgGlyLysGluAspSerSerThrProValMetLysAspGluAs
                                                                                 sTyrAlaLeuPheSerProSerAspHisArgValProArgIleTyrValP
                                                                                                                                                                                                                                                                                                                                                                                                                                        eAlaLeuGlyGlnLeuAlaLysSerLeuGlyGlnAlaGlyGluIleGluP
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                                                                                                                                                                                         ThrGlyIleLeuLysLeuLeuAlaAspLysAsnSerAspLeuPheLysLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               High quality sequence stop: 639.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           362 oPro..AspGluValGlyLysArgArg 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           645 TCCACTGATGAGGTGGGCAGGAAAAG 671
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AUTHORS
TITLE
JOURNAL
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KEYWORDS
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                                                                                                                               529
                                                                                                                                                             251
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                                                                  212
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456 MetThrAspLysLeuThrPheSerValIleTrpLysLeuThrProGluG1 472
                                                                                                                                                                                                 472 yLysIleLeuGluGluTrpPheGlyArgThrIleIleArgSerCysThrL 489
                                                                                                                                                                                                                         489 ysLeuSerTyrAspHisAlaGlnSerMetIleGluAsnProThrGluLys 505
                                                                                                                                                                                                                                                                                                                                                                                                                                            51 TAAAGTGGCTGCCGAGAGGGCTACAAGCGTCTACTTGGTTCAAAAGGTGG 100
                                       alProMetLeuProArgLeuLeuCysGluGluLeuCysSerLeuAsnPro 455
                                                                                                                                            539 rgGlnArgPheValAspGlyAlaLeuArgLeuAspGlnLeuLysLeuAla 555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          556 PheThrLeuAspHisGluThrGlyLeuProGlnGlyCysHisIleTyrGl 572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               606 ArgArgHisProPro.ProGlnThrLysMetLeuSerAspLeuValGluP 622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        etAlaValAlaHisLysIlePheArgThrPheProGluGlnAlaLeuLeu 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             622 heCysAspGlnMetGlyLeuProMetAspValSerSerAlaGlyAlaLeu 638
                                                                                                                                                                                                                                                                                                                                                               506 IleProGluGluLeuProProIleSerProGluHisSerValGluGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BF182212.1 GI:11060354
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BF182212
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            696 AATAAAAGCCTG 707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
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KEYWORDS
SOURCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="IMAGE:4843508"
/clone="IMAGE:4843508"
/tissue_type="Incornal pigmented retinal epithelium"
/lab_host="DH10B (phage-resistant)"
/note="Yorgan: eye; Vector: poTB7; Site_1: XhoI; Site_2: ECORI; CDNA made by oligo-dT priming. Directionally cloned into ECORI/XhoI sites using the following 5' adaptor: GGCAGGAG(D. Library constructed by Ling Hong in the laboratory of Gerald M. Rubin (University of California, Berkeley) using ZAP-cDNA synthesis kit (Strategaene) and Superscript II RT (Life Technologies).

Note: this is a NIH_MGC Library. |" (Life Technologies).
                                                                                                                                                                                                       seq_documentation_block:
LOCUS BG755784 711 bp mRNA linear EST 15-MAY-2001
DEFINITION 602706985F1 NIH_MGC_43 Homo sapiens CDNA clone IMAGE:4843508 5',
                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

(Dasss 1 to 711)

NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)

Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: cgapbs remail.nih.gov
Tissue Procurement: ATCC
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LINL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LINL at:
http://image.llnl.gov
                                                                                   444 gleuLeuCysGluGlu.LeuCysSerLeuAsnProMetThrAspLysLeu 460
    428 ArgAlaThrSerValTyrLeuValGlnLysValValProMetLeuProAr 444
                                                    651
                                                                                                             422 pLysValAlaAlaGluArgAlaThrSerValTyrLeuValGlnLysValV 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     406 ValHisIleAlaAspValSerTyrPheValProGluGlySerSerLeuAs 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length: 238
Gaps: 2
Percent Identity: 90.336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Plate: LLCM.679 row: j column: 21
High quality sequence stop: 702.
Location/Qualifiers
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/db_xref="taxon:9606"
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                                                                                                                                                                                                                                                                     mRNA sequence. BG750784
BG750784.1 GI:14061437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Quality: 1050.50
Ratio: 4.567
Percent Similarity: 96.639
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US-09-647-377-9 x BG750784
                                                                                                                                                                    seq_name: gb_est2:BG750784
                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
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AUTHORS
TITLE
JOURNAL
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KEYWORDS
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BF182212 898 bp mRNA linear EST 31-OCT-2000 601804759F1 NCI_CGAP_Mam5 Mus musculus cDNA clone IMAGE:4035470 5',
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NIH-MGC http://mgc.nci.nih.gov/.
NAH-MGC http://mgc.nci.nih.gov/.
National: Assistantes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-rémail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
TITLE
JOURNAL
COMMENT
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/note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: Sal1; Site_2: Not1; Cloned unidirectionally. Primer: Oligo dr. Library constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Robin Humphreys,
Tissue Procurement: Lothar Hennighausen Ph.D., Robin Humphreys cDNA Library Preparation: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.B. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Consortium (LLNL) Clone distribution: MGC clone distribution: MGC clone distribution in MGC 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gAlaThrSerValTyrLeuValGlnLysValValProMetLeuProArgL 445
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  378 eThrileAspProSerThrAlaArgAspLeuAspAspAlaLeuAlaCysA 395
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            euLeuCysGluGluLeuCysSerLeuAsnProMetThrAspLysLeuThr 461
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="NCI_CGAP_Mam5"
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/tissue_vype="tumor, gross tissue"
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                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /strain="C57/B6"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                260 g
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Ratio: 4.339
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Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        204
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// Ab_xref="taxon:9606"
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//db_xref="taxon:9606"
//clone=lib="MIAGE:5021699"
//clone=lib="MIAGE:5021699"
//tissue_type="thabdomyosarcoma"
//tab_host="bH1000 (phage-resistant)"
//tab_host="bH10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  602862446F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:5021699 5', mmRNA sequence.
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 825)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
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Contact: Robert Strausberg, Ph.D.
Contact: Robert Strausberg, Ph.D.
Tissue Procurement: ATC
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Preparation: Ling Hong/Rubin Information
CDNA Sequencing by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
R column: 12
High quality sequence stop: 675.
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us-09-647-377-9.p2n.rst

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LysllePheArgThrPheProGluGlnAlaLeuLeuArgArgHisProPr 610
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         394 CysArgArgLeuThrAspGlyThrPheGluValGlyValHisIleAlaAs 410
                                                                                                                                                                                                                                                         427 luArgAlaThrSerValTyrLeuValGlnLysValValProMetLeuPro 443
                                                                                                                                                                                                                                                                                                                                                    uThrPheSerValIleTrpLysLeuThrProGluGlyLysIleLeuGluG 477
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                                                                                                                                                                                                           pValSerTyrPheValProGluGlySerSerLeuAspLysValAlaAlaG 427
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                                                        Length: 275
Gaps: 3
Percent Identity: 77.818
 156
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                                                                                                                                       from: 1
 225
  O
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                                                      Quality: 1021.00
Ratio: 4.272
Percent Similarity: 86.909
235
                                                                                                   alignment_block:
US-09-647-377-9 x BI114256
  Ø
209
                                              alignment_scores:
BASE COUNT
ORIGIN
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seq_documentation_block:
LocUS B1088256
DECT 20-DECT 20-DECT 20-DECT 20-DECT 20-DECT 20-DECT 20-DEFINITION 3223-16 Mouse E14.5 retina lambda ZAP II Library Mus musculus cDNA, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                   house mouse.
Mus musculus
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 600)
                                                                                                                                                                                                                                                                                                                                                                                                                                 M. X., Zhao, S., Pershad, R., Hsieh, T.-F., Scarpa, A., Wang, S.W., White, R.A., Beremand, P.D., Thomas, T.L., Gan, L. and Klein, W.H. Gene expression in the developing mouse retina by EST sequencing and microarray analysis.

Nucleic Acids Res. 29 (24), 4983-4993 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers

1. 600

Appanism="Musculus"

/db_xref="taxon:10090"

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/tissue_type="neural retina"

/tissue_arage="neural retina"

/tissue_arage="neural retina"

/tissue_arage="neural retina"

/tissue_arage="neural retina"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Klein WH
Department of Blochemistry and Molecular Biology
University of Texas M.D. Anderson Cancer Center.
Box 117, 1515 Holcombe Blvd., Houston, TX 77030, USA
Tel: 713 792 3646
Fax: 713 790 0329.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              euValGlnLysValValProMetLeuProArgLeuLeuCysGluGluLeu 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  467 sLeuThrProGluGlyLysIleLeuGluGluTrpPheGlyArgThrIleI 484
                 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 417 uGlySerSerLeuAspLysValAlaAlaGluArgAlaThrSerValTyrL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length: 200
Gaps: 1
Percent Identity: 99.500
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                                                                            651 yrSerLeuAlaArgLysGluVal 658
                                                                                                  BI988256.1 GI:17959235
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99.500
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US-09-647-377-9 x BI988256
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KEYWORDS
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to: 600

from: 1

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to: BG804017
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                Align seg 1/1
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KEYWORDS
SOURCE
ORGANISM
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TITLE
JOURNAL
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I (bases 1 to 600)

IN,X., Zhao,S., Pershad,R., Hsieh,T.-F., Scarpa,A., Wang,S.W., White,R.A., Beremand,P.D., Thomas,T.L., Gan,L. and Klein,W.H. Gene expression in the developing mouse retina by EST sequencing and microarray analysis (2001)

IN Nucleic Acida Res. 29 (244), 4983-4993 (2001)

Contact: Klein WH

Department of Biochemistry and Molecular Biology University of Texas M.D. Anderson Cancer Center Box 117, 1515 Hockombe Blvd., Houston, TX 77030, USA Tel: 713 792 3646

Fax: 713 792 0329.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq_documentation_block:

LOCUS
BG804017
DEFINITION 0244-55 Mouse E14.5 retina lambda ZAP II Library Mus musculus cDNA, mRNA sequence.

ACCESSION
BG804017
VERSION
BG804017.1 GI:17950931
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/tissue_type="neural retina"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="neural retina"
/dev_stage="embryonic day 14.5 post-fertilization"
173 c 151 g 126 t 3 others
                                                                                                                                                                                                                                                                                                                                                                                                                102 AATCCAACTGAGAAGATCCCTGAGGAAGAGCTTCCCCCAATTTCTCCCGAG 351
                                                                                                                                                                                                             551 GlnLeuLysLeuAlaPheThrLeuAspHisGluThrGlyLeuProGlnGl 567
                                                                                                                                                                                                                                                                                                                                                                517 uHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSerIleA 534
GCTGACCCCTGAAGGCAAGAICCTTGAAGAGTGGTTTGGCCGCACTATCA 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            501 AsnProThrGluLysIleProGluGluGluLeuProProIleSerProGl
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Percent Identity: 98.500
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/organism="Mus musculus"
/db_xref="taxon:10090"
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Percent Similarity: 98.500
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US-09-647-377-9 x BG804017
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BE284271 622 bp mRNA linear EST 26-OCT-2000 601087339F1 NCI_CGAP_Mam5 Mus musculus cDNA clone IMAGE:3482313 5',
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                                                                                                                                                               202 TITCICCAGAGCACAGCGTCGAGGAGGTGCACCCAGGCAGTCCTGAACCTG 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HisSerIleAlaLysGlnLeuArgArgGlnArgPheValAspGlyAlaLe 547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
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                                                                                                                                                                                                                                                                                                                                         481 rgThrilelleArgSerCysThr.LysLeuSerTyrAspHisAlaGlnSe 497
                                                                                                                                                                                                                                                                                                                                                                                            497 rMetileGluAsnProThrGluLysIleProGluGluGluLeuProProI 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 252 CACAGCATTGCAAAGCAACTCCGCCGCCAGCGCTTTGTAGATGGCGCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          614 ysMetLeuSerAspLeuValGluPheCysAspGlnMetGlyLeuProMet
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448 GluGluLeuCysSerLeuAsnProMetThrAspLysLeuThrPheSerVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                514 leSerProGluHisSerValGluGluValHisGlnAlaValLeuAsnLeu
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LOCUS BE284271
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153 TATCATCCGTTCTTGCACCAAACTGAGCTACGACCATGCCCAGAGCATGA 502

08:37:48 2002

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Tue Jul

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/note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: Sall; Site_2: NOt1; Cloned unidirectionally. Primer: Oligo dT. Labrary constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Robin Rumphreys,
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://mage.llnl.gov
Plate: LLAM8511 row: n column: 10
High quality sequence stop: 569.
Location/Qualifiers
1. .622
/organism="Mus_musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         333 GlyIleLeuThrGluTyrGlyValAspPheSerAspPheSerSerGluVa 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  349 lLeuGluCysLeuProGlnSerLeuProTrpThrIleProProAspGluV 366
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                416 roGluGlySerSerLeuAspLys.ValAlaAlaGluArgAlaThrSerVa 432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          449 luLeuCysSerLeuAsnProMetThrAspLysLeuThrPheSerVallle 465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            466 TrpLysLeuThrProGluGlyLysIleLeuGluGluTrpPheGlyArgTh 482
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain="C57/b6"
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/dev_stage="7", months"
/lab_host="DH100"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length: 206
Gaps: 2
Percent Identity: 96.117
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Ratio: 5.025
nilarity: 98.058
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US-09-647-377-9 x BE284271
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                                                                                                                                                                                                                                                                                                                                                                                               152
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ORIGIN
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High quality sequences to communicate this is a Market Holor Location/Qualifiers

I. 1158

/ Organism="Mus musculus"
/ Ab_xref="taxon:10090"
/ Clone="IRAGE:5336719"
/ Clone="IRAGE:5336719"
/ Lissue_type="tumor, gross tissue"
/ Lib_host="DH10B" NH_CGAP_Man3"
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/ Lissue_type="tumor, gross tissue"
/ Lib_host="DH10B" NH_CGAP_Man3"
/ Lissue_type="tumor, gross tissue"
/ Lissue_type="tumor, gross tissue, gross ti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_documentation_block:
LOCUS B1650394
DEFINITION 603296125F1 NIH_CGAP_Mam3 Mus musculus cDNA clone IMAGE:5336719 5',
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Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ph.D.
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NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Robert Strausberg, Ph.D.

Contact: Robert Strausberg, Ph.D.

Tissue Stremall.nih.gov

Tissue Procurement: Lothar Hennighausen Ph.D., Chu-Xia Deng F

CDNA Library Preparation: Life Technologies, Inc.

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can k

ficuld through the I.M.A.G.E. Consortium/LLNL at:

http://image.lnl.gov

Plate: LLAMI1855 row: a column: 08
                                        516 ProGluHisSerValGluGlu.ValHisGlnAlaValLeuAsnLeuHisS 532
                                                                                                                                                                                                       1 MetAsnHisProAspTyrLysLeuAsnLeuArgSerProGlyThrProAr 17
499 leGluAsnProThrGluLysIleProGluGluGluLeuProProIleSer
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US-09-647-377-9 x BI650394
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	GluthriyrMetSerLysGluAspValSerGluGlyLeuLysArgGlyTh 6 	30
	rLeuileGinGlyValLeuargileAsnProLysLysPheHisGlualap 8	14
	helleproserProAspGlyAspArgAspIlePhelleAspGlyValVal 1 	30
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	oguaspolntrplysalavallysProgluserasnasplysglutleg 1 	134 530
	lualathrtyrdlualaaspileprodludludlycysGlyHisHisPro   	150 580
	LeuginginserargiysglytrpserGlyproaspyalileileglu   	166 630
	AladinPheAspAspSerAspSerGluAspArgHisGlyAsnThrSerGl 1    :::	183 680
	YLeuValAspólyValLysLysLeuSerīleSerThrProAspArg6 1                    CCTGGTTGATGGTGTTGTGAATCTCTAACTCCTGACAGAG 7	199 730
	lylysgluaspSerSerThr.ProValMetLys.aspGluasnThrPr 2        :::	214 780
	oileProGlnaspThrargGlyLeuSerGluLysS 2	226 830
	alTyrileLeuGluLysLysHisSer :   :::             IACACATCTTGGAGGAGAAAGAGTT :	242 874
	ArgalaAlarhrGly1le 248 :::	

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12 1 AF269873 Staphylococcus epi
12 1 AK145191 Sequence 3913 from
1000 1 Continuation (3 of 4) of
12 1 Ac057824 Glardia intestinali
12 2 1 AK001346 Homo sapiens CDNA
12 1 AK025634 Homo sapiens CDNA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PAT 07-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus

Bukaryota, Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Butheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 3100)

Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.
Nucleic acid molecules which code proteins influencing bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              development
patent: WO 9950284-A 8 07-OCT-1999;
Patent: WO 9950284 DED; HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
LOCALION/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
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/organism="Mus musculus"
/db_xref="taxon:10090"
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/note="unnamed protein product"
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gb_htg: PFMAL13P2_2
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1 Continuation (5 of 5) of AC09

1 U23514 Caenorhabolitis elegans

1 AX015916 Sequence 19 from Pat

76 1 AC012033 Homo sapiens clone

16 1 AC074188 Homo sapiens clone

16 1 AC074188 Homo sapiens ALPP,
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2992 | AY057479 Arabidopsis thaliana
33830 | 270718 Caenorhabditis elegans
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                                            ROSENTHAL ANDRE (DE); RUMP
influencing bone
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Gaps: 0
Identity: 100.000
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AJGNER THOMAS (DE); HESS JOCHEN (DE); ROS
ANDREAS (DE); WIRTH THOMAS (DE)
Location/Qualifiers
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   Nucleic acid molecules which code
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Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AX015899
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Quality:
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus
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Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.
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                   2025 CTGCAGGGGCCCTAAATAAAAGCCTGACTAAGACATTTGGAGATGACAAG 2074
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2625 TCTTCAGCCTGGTGGATGTGGTCCTGCAGGCAGAGGCCACAGCCCTCAAG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    817 lTrpGluProAspAspLeuGluGluGluProThrGlnGlnValIleThrI
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        DNA
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LOCUS AX015899
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KEYWORDS
SOURCE
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PAT 07-SEP-2000
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                                                                                                                                                                                                               Mus musculus
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus.
1 (bases 1 to 4999)
Aigner,T., Hess,J., Rosenthal,A., Rump,A. and Wirth,T.
Nucleic acid molecules which code proteins influencing bone
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Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 49999)
                                                                                                                                                                                                                                                                                                                                   Patent: WO 9950284-A 5 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
           8670 CACCAGGCAGTCCTGAACCTGCACAGCATTGCAAAGCAACTCCGCCGCCA 8719
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Quality: 78.00 Length: 78 Ratio: 1.000 Gaps: 0 Percent Similarity: 100.000 Percent Identity: 100.000
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DEFINITION Sequence 11 from Patent W09950284.
ACCESSION AX015908
TYRESION AX015908.1 GI:10041651
KEYWORDS
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AX015902 AX015902
DEFINITION Sequence 5 from Patent W09950284.
ACCESSION AX015902
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US-09-647-377-9 x AX015902
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ORGANISM
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                                                                                                                                                                                                                                                                                                             AF312994 228283 bp DNA linear ROD 17-JAN-2002 AF312994.1 GI:18182288
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 228283)
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Rump, A. Hess, J., Galgoczy, P., Wirth, T. and Rosenthal, A.
Direct Submission
Submitted (12-OCT-2000) Genome Analysis, Institute of Molecular
Biotechnology, Beutenbergstrasse 11, Jena 07745, Germany
Location, Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 228283)
Rump,A., Hess,J., Galgoczy,P., Wirth,T. and Rosenthal,A.
Genomic sequence from mouse chr. 1
Unpublished
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Gaps: 0
Percent Identity: 100.000
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Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AF312994
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Mus musculus
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                                                                                                                                          Description: 1st strand cDNA was primed with an oligo(dT) primer [ATGTGGCCTTTTTTTTTTTTTTT]; double-stranded cDNA was synthesized using specific 5, and 3' primers and amplified by PCR. The PCR product was digested with Sfil and size selection was performed to exclude fragments <1.5kb.The Sfil-digested PCR product was cloned into distinct Drail sites of pMEIBS-FL3. Mol Sites just outside the Drail sites can be used to isolate the cDNA insert. Libraries were constructed by Sugano et al.(University of Tokyo, Institute of Medical Science). Custom primer used for sequencing (5' end primer [CATCTGCTCTAAAAGCTGGG]; 3' end primer [CATCTGCTCTAAAAGCTGGG]; 3' end primer [CATCTGCTCTAAAAGCTGGG];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAT 07-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /tissue_type="medulla oblongata"
/clone_lib="macaque brain cDNA library QmoA"
/dev_stage="adult"
151_.900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56 LysGluAspValSerGluGlyLeuLysArgGlyThrLeuIleGlnGlyVa 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Identity: 100.000
                                      PME18S-FL3 (Acc.No. AB009864)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    106 LeuAsnGlyAspLeuValValValLysLeuLeuProGlu 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           466 TTAAATGGGGATCTGGTGGTCGTGAAACTACTTCCCGAG 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 .2189
/organism="Macaca fascicularis"
/db_xref="taxon:9541"
/clone="QmoA-12105"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 6 from Patent W09950284
AX015903
                                                                         Draili (CACCATGTG)
Draili (CACCATGTG)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Align seg 1/1 to: AB066536
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Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AB066536
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LOCUS AX015903
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Lab host:
Vector:
R. Sitel:
R. Site2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
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        COMMENT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AB066536 2189 bp mRNA linear PRI 26-JUL-2001 Macaca fascicularis brain cDNA clone:QmoA-12105, full insert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammallai; Eutheria; Parlantes; Catarrhini; Cercopithecindae; Carcopithecine; Macaca.

1 (bases 1 to 2189)
Osada, M., Hida, M., Kusuda, J., Tanuma, R., Iseki, K., Hirai, M., Terao, K., Suyano, S. and Hashimoto, K.
                                                                             development
development
Patent: WO 9950284-A 11 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
Location/Qualifiers
1. 49999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AB066536.1 GI:15021873
oligo capping; fis (full insert sequence).
Macaca fascicularis adult male medulla oblongata cDNA to mRNA, clone_lib:macaque brain cDNA library QmoA clone:QmoA-12105.
Macaca fascicularis
        Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T. Nucleic acid molecules which code proteins influencing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10655 CACCAGGCAGTCCTGAACCTGCACAGCATTGCAAAGCAACTCCGCCGCCA 10704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    524 HisGlnAlaValLeuAsnLeuHisSerIleAlaLysGlnLeuArgArgGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             490 uSerTyrAspHisAlaGlnSerMetIleGluAsnProThrGluLysIleP
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Gaps: 0
Percent Identity: 100.000
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11787 c 10868 g 14209
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Ratio: 1.000
Percent Similarity: 100.000
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LOCUS AB066536
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JOURNAL
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ORIGIN
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SOURCE
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                                                                                                                                     JOURNAL
                     AUTHORS
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Ratio: 1.000
Percent Similarity: 100.000
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                                                                                                                      Align seg 1/1
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ORGANISM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PAT 07-SEP-2000
Mus musculus
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostoml;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (Dases 1 to 36901).
Aigner,T., Hess,J., Rosenthal,A., Rump,A. and Wirth,T.
Nucleic acid molecules which code proteins influencing bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 38886)
Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T. Nucleic acid molecules which code proteins influencing bone
                                                                                                          development
Patent: WO 9950284-A 6 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
LOCATION (QUALIFIERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patent: WO 9950284-A 12 07-ocT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12528 CTTCCGCACCTTCCCTGAGCAGCCCTGCTGCGCCGGCATCCCCCACCAC 12577
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Gaps: 0
Percent Identity: 100.000
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Sequence 12 from Patent W09950284.
                                                                                                                                                                                                                          /organism="Mus musculus"
/db_xref="taxon:10090"
9409 c 8973 g 8925
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/db_xref="taxon:10090"
a 9920 c 9356 g 952:
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AX015909.1 GI:10041652
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Percent Similarity: 100.000
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US-09-647-377-9 x AX015903
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NOTE: This is a 'working draft' sequence. It currently consists of 61 contigs. The true order of the pieces is not known and thehair order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Consensus quality: 123669 bases at least Q40 consensus quality: 129396 bases at least Q30 consensus quality: 135066 bases at least Q20 Estimated insert size: 124661; sum-of-contigs estimation Quality coverage: Ox in Q20 bases; agarose-fp estimation Quality coverage: 2.3x in Q20 bases; sum-of-contigs estimation
                                                                                                                                                                                                                           Direct Submission
Submitted (23-OCT-2001) Human Genome Sequencing Center, Department
Submitted (23-OCT-2001) Human Genetics, Baylor College of Medicine, One
Baylor Plaza, Houston, TX 77030, USA
On Dec 20, 2001 this sequence version replaced gi:17064556.

Center: Baylor College of Medicine
Center code: BCM
  Thomas, S., Usmani, K., Vasquez, L., Vera, V., Villalon, D., Vinson, R., Wall, R., Wang, S., Ward-Moore, S., Warren, R., Washington, C., Walliams, G., Williamson, A., Wleczyk, R., Woden, S., Worley, K., Wu, C., Wu, Y., Wu, Y., Wu, Y., Yu, Y.F., Zhou, J., Zorrilla, S., Nelson, D. Direct Submission
Direct Submission
Unpublished
2 (bases I to 153701)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Assembly program: Phrap; version 0.990329First call to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8487: contig of 8487 bp in length 8587: gap of unknown length 12859: contig of 4272 bp in length 12959: gap of unknown length 17729: contig of 4770 bp in length 17829: gap of unknown length 23516: contig of 5687 bp in length 23616: gap of unknown length 27189: contig of 5887 bp in length 27189: contig of 3873 bp in length 3122: contig of 3833 bp in length 3122: gap of unknown length
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61912
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9 08:37:45 2002

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595 ePheArgThrPheProGluGlnAlaLeuLeuArgArgHisProProF 612
                                                                                                                                                                                                                                                                                                                                                                            612 InThrLysMetLeuSerAspLeuValGluPheCysAspGlnMetGlyLeu 628
                                                                                                                                                                                                                                                             579 LeuvalGluGluPheMetLeuLeuAlaAsnMetAlaValAlaHisLysIl 595
                                                       bp in length
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    bp in length
                                                                                                                                                                                                                                    Align seg 1/1 to reverse of: AC098189 from: 1 to: 153701
                                                                                                                                                    Gaps: 0
Percent Identity: 100.000
                                             length
                                                                                                   unknown length
contig of 1776 b
gap of unknown l
contig of 1162 b
gap of unknown l
contig of 1243 b
gap of unknown l
contig of unknown l
                                                                                                                                           Length:
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                                                                                                                                                                                                                                                                                                                                                                                                                                 629 ProMetAspValSerSerAlaGlyAlaLeuAsn 639
                                        144080:
145323:
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142718:
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US-09-647-377-9 x AC098189/rev
                                                                                                                                       Quality: 61.00
Ratio: 1.000
Percent Similarity: 100.000
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                                                                                                                           alignment_scores:
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Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (Bases 1 to 162042)

3 Abola.A.P., Bruno.D., Conn.L., Dela Rosa.M., Faulkner, D., Federspiel, N., Glukhov,S., Hansen,N., Herman,Z.S., Hyman,R., Mao.J., Lam,B., Marathe,R., Miranda.M., Morehouse,A.J., Nguyen,M., Oefner,P., Palm.C.J., Ramirez,D., Southwick,A.M., Wilhelmy,J., Yu,S. and Davis,R.W.

1 Unpublished

2 (Bases 1 to 162842)

3 E (Chases 1 to 162842)

4 E (Chases 1 to 162842)

5 E (Chases 1 to 162842)

5 E (Chases 1 to 162842)

5 E (Chases 1 to 162842)

6 Bruno.D., Conn.L., Dela Rosa,M., Faulkner,D., Federspiel,N., Morehouse,A.J., Oefner,P., Palm,C.J., Ramirez,D., Wilhelmy,J., Yu,S. and Davis,R.W.

5 Direct Submission

8 Sanford University, 855 California Avenue, Palo Alto, CA 94304, Insa.
                      AC024062 162842 bp DNA linear HTG 10-MAR-2001
Homo sapiens chromosome 2 clone RP11-95H14, WORKING DRAFT SEQUENCE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center: Stanford DNA Sequencing and Technology Development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AC024062.27 GI:13270576
HTG: HTGS_PHASE1; HTGS_DRAFT; HTGS_FULLTOP; HTGS_ACTIVEFIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            On Mar 10, 2001 this sequence version replaced gi:13236644.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Center code: SDSTDC
Center
                                                DEFINITION
                                                                                                                                                                                                              ORGANISM
                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
REFERENCE
AUTHORS
                                                                                                                           VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
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316 GlnLeuAlaLysSerLeuGlyGlnAlaGlyGluIleGluProGluThrGl 332

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Sequencing Vector: Mingle; X02513; 99% of reads
Sequencing Vector: Mingle; X02513; 99% of reads
Sequencing Vector: plasmid; plasmid_accession; 1% of reads
Chemistry: Dye-primer; 2% of reads
Chemistry: Dye-primer; 2% of reads
Chemistry: Dye-primer; 2% of reads
Assembly program: Phrap; version 0.990319
Consensus quality: 159909 bases at least Q30
Consensus quality: 159909 bases at least Q30
Consensus quality: 159909 bases at least Q30
Insert size: 166936; agarose-fp
Insert size: 16242; sun-of-contigs
Ouality coverage: 14.6x in Q20 bases; agarose-fp
Quality coverage: 15.0x in Q20 bases; sum-of-contigs.
* NOTE: This is a 'working draft' sequence: It currently
consists of 7 contigs. The true order of the places
* six not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                                                                       arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1779: contig of 1779 bp in length
1879: gap of unknown length
1874: gap of unknown length
1874: gap of unknown length
18208: contig of 2453 bp in length
38208: contig of 2734 bp in length
38308: gap of unknown length
6555: contig of 27243 bp in length
6555: gap of unknown length
18781: contig of 28230 bp in length
127838: contig of a8857 bp in length
127938: gap of unknown length
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/organism="Homo sapiens"
/orbxoref="taxon:9606"
/chromosome="2"
/clone="RR11-95H14"
1. .1779
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Gaps: 0
Percent Identity: 100.000
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/note="assembly_name:Contig61"
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38309. .65551
/note="assembly_name:Contig63
clone_end:SP6"
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/note="assembly_name:Contig64"
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/note="assembly_name:Contig65
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Center clone name: RP11-95H14
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Percent Similarity: 100.000
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US-09-647-377-9 x AC024062
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Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AX015907
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LOCUS AX015910
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Quality:
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Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 345102)
                                                                                                                                                                                                                                                                                                                                                                  AF312225 345102 bp DNA linear PRI
Homo sapiens chromosome 2 map 2q37.1, complete seguence.
AF312225
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                                                                                  332 uGlyIleLeuThrGluTyrGlyValAspPheSerAspPheSerSerGluV 349
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70334 c 74209 g 108499 t
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AX015907
AX015907.1 GI:10041650
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US-09-647-377-9 x AF312225
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LOCUS AF312225
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IVEFCDQGGHIYVENSKKLYEFEFMLIANMAVAHKIHRAPPEGALLRRHPPPOFRMLSD
IVEFCDQMGLPVDFSSAGALNKSLTQTFGDDKYSLARKEVLINMCSRPMQMALYFCSG
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Mus musculus
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostoml;
Mammalia: Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus.
1 (bases 1 to 4999)
Aigner,T., Hess,J., Rosenthal,A., Rump,A. and Wirth,T.
Nucleic acid molecules which code proteins influencing bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 1784)
Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.
Nucleic acid molecules which code proteins influencing bone
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                                                                                                                                                                                                                                                                                                                development
Patent: WO 9950284-A 10 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIETH THOMAS (DE)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               400 GlyThrPheGluValGlyValHisIleAlaAspValSerTyrPheValPr 416
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Gaps:
Percent Identity: 100.000
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CER 1 (Dasses I to 153701)

Muzny, D.M., Adans, C., Adio-Odoola, B., Ali-osman, F.R., Allen, C., Alsbrooks, S.L., Amaratunge, H.C., Are, J.R., Banks, T., Barbaria, J. Babrooks, S.L., Amaratunge, H.C., Are, J.R., Bonnin, D., Bouck, J., Benneto, J., Blinage, K., Blankenburg, K., Bonnin, D., Bouck, J., Burch, P., Blarder, K., Blankett, C., Burrell, K.L., Byrd, N.C., Carron, T.F., Carter, M., Cavazoos, S.R., Chacko, J., Chavez, D., Chen, G., Chen, R., Chowdhry, J., Christopoulos, C., Cleveland, C.D., Cox, C., Coyle, M.D., Dathorne, S.R., David, R., Davila, M.L., Davis, C., Earnhart, C., Edgar, D., Edwards, C., Edwards, C., Eldaj, C., Escotto, M., Faralis, T., Ferraguto, D., Flagg, N., Ford, J., Foster, P., Frantz, P., Gabisi, A., Gao, J., Garcia, A., Garner, T., Garza, N., Gill, R., Gabisi, A., Gao, J., Garcia, A., Garner, T., Garza, N., Gill, R., Garisl, A., House, M., Holloway, C., Hamilton, K., Harris, C., Harris, K., Hart, M., Havlak, P., Hune, J., Jackson, L.E., Jacobson, B., Jia, Y., Hune, J., Lauly, S., Karlson, E., Kalvis, L., Li, J., Li, L., Li, M., Mapua, P., Marting, R., Maresharih, M., Mapua, P., Marting, R., Maresharih, M., Mapua, P., Marting, R., Maresharih, M., Mapua, P., Marting, R., Makesharih, M., Mapua, J., Makesharih, M., Mapua, P., Marting, R., Makesharih, M., Mapua, J., Makesharih, M., Makesharih,
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IYCNALALRSHHPQKVGKKPELTLVWEPEDMEQEPAQQVITIFSLVEVVLQAESTALK
YSALLKRPGTQGHLGPEKEEEESDGEPEDSSTS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCUSAGE 153701 bp DNA linear HTG 20-DEC-2001 Rattus norvegicus clone CH230-145D14, *** SEQUENCING IN PROGRESS ***, 61 unordered pieces.
LLQDPAQFRHYALNVPLYTHFTSPIRRFADVLVHRLLAAALGYRERLDMAPDTLQKQA
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
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Gaps: 0
Percent Identity: 100.000
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Percent Similarity: 100.000
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1.000
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Ratio:
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Peery, J., Perez, L., Peters, L., Pickens, R., Primus, E., Pu, L.L., Quiles, M., Ren, Y., Rives, M., Rojas, A., Rojubokan, I., Rolfe, M., Sisson, I., Savery, G., Scherre, S., Soctt, G., Shen, H., Shochtari, N., Stone, H., Sodergren, E., Sonalke, T., Sparks, A., Stanley, H., Stone, H., Sutton, A., Svatek, A., Tabor, P., Tamerisa, A., Tamerisa, K., Tang, H., Tansey, J., Taylor, C., Taylor, P., Telfrod, B., Thomas, N., Thomas, S., Gsmani, K., Vasquez, L., Vera, V., Villalon, D., Vinson, R., Wall, R., Wang, S., Ward-Moore, S., Warren, R., Washington, C., Wulliams, G., Williamson, A., Wleczyk, R., Wooden, S., Weinstock, G. and Gibbs, R., Weinstock, C. and Gibbs, R.
                                                                                                                                                                                                                                                      Voltage 1 to 153701)

Worley, K.C.

Worley, K.C.

Worley, K.C.

Worley and Franciscope of Medicine, Department of Molecular and Human Genetics, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA

On Dec 20, 2001 this sequence version replaced gi:17064556.

Center: Baylor College of Medicine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NOTE: Estimated insert size may differ from sequence length (see http://www.hgsc.bom.tmc.edu/docs/Genbank_draft_data.html).
NOTE: This is a 'working draft' sequence. It currently consists of 61 contigs. The true order of the places is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Consensus quality: 123669 bases at least Q40
Consensus quality: 129396 bases at least Q30
Consensus quality: 135066 bases at least Q20
Estimated insert size: 124661; sum-of-contigs estimation
Quality coverage: 0x in Q20 bases; agarose-fp estimation
Quality coverage: 2.3x in Q20 bases; sum-of-contigs estimation
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8587: gap of unknown length
2859: contig of 4272 bp in length
2959: gap of unknown length
7729: contig of 4770 bp in length
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of 5687 bp in length
unknown length
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Web site: http://www.hgsc.bcm.tmc.edu/
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bp in length

in length

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contig of 2312 bp in length
gap of unknown length
contig of 1761 bp in length
contig of 1643 bp in length
gap of unknown length
contig of la335 bp in length
contig of 1335 bp in length
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AC019130 139049 bp DNA linear PRI 10-JAN-2002 HOmo sapiens BAC clone RPI1-563E16 from 2, complete sequence. AC019130 6 I:18104914
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Submitted (30-DEC-1999) Genome Sequencing Center, Washington
University School of Medicine, 4444 Forest Park Parkway, St. Louis,
MO 63108, USA
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 139049)
Sulston,J.E. and Materston,R.
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Levy,A. and Kozlowicz,A.
The sequence of Homo sapiens BAC clone RP11-563E16
Upublished (2002)
3 (bases 1 to 139049)
Waterston,R.H.
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Gaps: 0
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Genome Res. 8 (11), 1097-1108 (1998)
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Waterston, R.
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Web site: http://genome.wustl.edu/gsc
Contact: sapiens@waston.wustl.edu
---------- Summary Statistics
Center project name: H_NH0563E16
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NOTICE: This sequence may not represent the entire insert of this clone. It may be shorter because we only sequence overlapping clone sections once, or longer because we provide a small overlap between neighboring data submissions.

This sequence was finished as follows unless otherwise noted: all regions were double stranded, sequenced with an alternate chemistry, or covered by high quality data (i.e., phred quality >= 30); an attempt was made to resolve all sequencing problems, such as compressions and repeats, all regions were covered by sequence from more than one subclone; and the assembly was confirmed by restriction digest.

## MAPPING INFORMATION:

Louis Mapping information for this clone was provided by Dr. John D. Merbherson. Department of Genetics, Mashington University, St. L MO. For additional information about the map position of this sequence, see http://genome.wustl.edu/gsc

## SOURCE INFORMATION:

The RPCI-11 human BAC library was made from the blood of one male donor, as described by Gosegawa, K., Woon, P.Y., Zhao, B., Frengen, E., Tateno, M., Catamese, J.J. and de Jong, P.J. (1998) An improved approach for construction of bacterial artificial chromosome libraries. Genomics 51:1-8. The clone may be obtained either from Research Genetics, Inc. (http://www.resgen.com) or Pieter de Jong and coworkers at the Roswell Park Cancer Institute
(http://bacpac.med.buffalo.edu)

NEIGHBORING SEQUENCE INFORMATION:
The clone sequenced to the left is RP11-1196K6; the clone sequenced to the right is RP11-95H14, 2000 bp overlap finished in RP11-563E16. Actual start of this clone is at base position 1 of RP11-563E16.

## /organism="Homo sapiens" /db\_xref="taxon:9606" /chromosome="2" 1458 .1489 /rpt\_family-"AT\_rich" 1469. 1766 /rpt\_family-"Alu" 1778. .1800 Unsure base at position 103812. Location/Qualifiers 99. .119 /rpt\_family="(TTTA)n" /rpt\_family="AT\_rich" 2123. .2203 /clone="RP11-563E16" /clone\_lib="RPCI-11" 746...925 77pt\_family="L1" 941...1242 /rpt\_family="Alu" 1391...1465 /rpt\_family="Alu" 1458...1489 /rpt\_family="Alu" 409. .704 /rpt\_family="L1" 746. 925 'rpt\_family="Alu" 409. .704 /rpt\_family="L1" repeat\_region source FEATURES

repeat\_region

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2276. .2578
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2700. .2817
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Align seg 1/1 to: AC019130 from: 1 to: 139049

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i M63004 S.cerevisiae SRK1 ge
i AR013983 Sequence B from pa
i M60318 S.cerevisiae SSD1 pr
i U51031 Saccharomyces cerev
i i AP001519 Bacillus halodur
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//codol_start=1
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ALRRYSFOKVGKKPELTLVWEPDDLEEEPTQQVITIFSLVDVVLQAEATALKYSALLK
RPGLEKASDEEPED"
                                                                                                                                                                                                                                                                                                                                                           PAT 07-SEP-2000
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Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 3100)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PATENT: WO 9950284-A 8 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Aigner,T., Hess,J., Rosenthal,A., Rump,A. and Wirth,T. Nucleic acid molecules which code proteins influencing bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34 spLysLysSerLysAsnLysSerMetArgGlyLysLysLysLysSerIlePhe 50
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Acganism="Mus musculus"
/db_xref="taxon:10090"
125. 2737
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Locus AX015905
DEFINITION Sequence 8 from Patent W09950284.
SetSION AX015905. GI:10041648
VERSION
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            gb_pl:YSCSRKIA
gb_pat:AR013983
gb_pl:YSCSIT4B
gb_pl:YSCD9819
gb_ba:AP001519
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
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-MODEL=frame-p2n.model -DEV-x1h
-Q-cgn2_1/TGSPTO_spool/JGS9647377/runat_08072002_075944_22292/app_query.fasta_1.940
-Q-cgn2_1/TGSPTO_spool/JGS9647377/runat_08072002_075944_22292/app_query.fasta_1.940
-Q-cgn2_1/TGSPTO_spool/JGS9647377/runat_08072002_07000
-GAPEXT-4.000 -MINMARCH=0.100 -LOOPELD-0.000 -LOOPEXT=0.000
-QGAPOP-4.500 -GAPEXT=0.050 -XGAPOP=10.000 -XGAPEXT=0.500
-GAPOP-4.500 -GAPEXT=0.000 -STAPOP-10.000 -YGAPEXT=0.500
-GAPOP-4.500 -DELEXT=7.000 -GAPOP-10.000 -YGAPEXT=0.500
-DELOP-6.000 -DELEXT=7.000 -GTART=1.TMARRIX=blosum62
-TRANS-human40.cd1 -LIST-45 -DOCALIGN-200 -THR_SCORE-pct
-TRANS-human40.cd1 -LIST-45 -DOCALIGN-200 -THR_SCORE-pct
-NORM-ext -HEAPSIZE-500 -MINLEN-0 -MAXLEN-200000000
-USRE-USD9647377_aCGN1_1_12153 -NCPU-6 -ICPU-3 -LONGLOG
-DEV_TIMEOUT-120 -WARN_TIMEOUT-30 -NO_XLPXY -WAIT -THREADS=1
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Database: GenEmbl:*
Database sequences: 1797656
Database length: 187333701
Search time (sec): 2781.750000
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9b_htg:PFMAL13P2_2
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	######################################	AICACCC IleGluA 	euvalaspGlyvalLysLysLeuSerIleSerThrProAspargGlyLys	ArgGlyLeuSerGluLysSerLeuGlnLysSerAlalysValW 2           111111111111111111111111111111111111	Phese        TTTC pcysP	CTGT heil 	sArgileileAspTrpLysGluAspCysAsnPheAlaLeuClyGlnLe 3	SAAATGGAGCCTGAAACAGAAGGGA 1 SSETASPPheSerSerGluValleu 3
	17 75 34	51 75 67 25	184 euvalAspGlyValLysLysLeuSerIleSerThrProaspArgG	217 nASPThrArgGlyLeuSerGluLySSerLeuGlnLySSerAlaLysVall	6 7 5	925 ICCITCAGACCACGAGIACCTAGE 284 FOGINASPPHEMETTHRAEGPTOLY [	301 CysArgileileAspTrpLysGluAspCysAsnPheAlaLeuGlyG 	075 GGCTAAGAGTTTTGGGCGCCGCTGGTAAATCGAGCCTGAL 334 leLeuThrGluTyrGlyValaspPheSeraspPheSers

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1125 TACTGACAGAATATGGTGTGGACTTCTCTGATTTCTCTTCAGAAGTTCTT 1174
                                                                                                               384 hrAlaArgAspLeuAspAspAlaLeuAlaCysArgArgLeuThrAspGly 400
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                                   YLYSArgArgAspLeuArgLysAspCysIlePheThrIleAspProSerT
                    351 GluCysLeuProGlnSerLeuProTrpThrlleProProAspGluValGl
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                                                                                                                                                                                            701 IleArgArgPheAlaAspValIleValHisArgLeuLeuAlaAlaAlaLe
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Patent: WO 9950284-A 13 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ÅNDRE (DE); RUMP ANDREAS (DE); WIETH THOMAS (DE)
LOCALION/QUALIFIELS
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Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mummalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

E latheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

E latheria; Rodentia; Sciurognathi; Muridae; Mus.

R Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.

Nucleic acid molecules Which code proteins influencing bone
development

AL No 9950284-A 1 07-0CT-1999;

AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP

AIGNER THOMAS (DE); WIRTH THOMAS (DE)

Location/Qualifiers

Location/Qualifiers

Ince / Organism="Mus musculus"

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C < 2. 1183

Anote="unnamed protein product"

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LFRAVIAVESGEDESERANWAVULNGARDALRUDGARDALRUSSEREP

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861 ....GluLysAlaSerAspGluGluProGluAsp
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ACCATGCCCAGAGCATGATCGAAAATCCAACTGAGAAGA 2	iluleuproprolleserprogludiservalgluglu 52 	IlealaLysGlnLeuargar 53 	SInargPheValaspGlyAlaLeuargLeuaspGlnLeuLysLeualaP 556 	lnGlyCysHisIleTyrGl		PheMetLeuLeuAlaAsn 	isLysllePheArgThrPheProGluGlnAlaLeuLeuA 606 	JeuserAspleuValGluPhe 62 	aLeuAs 6: 	laArgL 65	57.	CTG	ysSerGlyMetLeuGlnaspGlnGluGlnPheArgHisTyralaLe 689 	TYTTHRISPheThrSerProlleArgArgPheAlaA 70:	HisargleuLeualaalaalaLeuGlyTyrSerGluGln 722 	m æ	SerLysArgValGlnGluLeuSerIleGlyLeuPhep 75 	VallysGluSerGlyProLeuGluSerGlualaMetVal 772 	uasnginalapheaspValLeuValLeuargPheGlyVa 789 	1eTyrCysAspAlaLeuAlaLeuArgSerTyrSerPheG 806 
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Submitted (11-JUL-2001) Department of Genetics, Washington
University, Genome Sequencing Center, 4444 Forest Park Avenue, St.
Louis, Mo 63110, USA
6 (bases 1 to 35325)
Waterston,R.
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Submitted (30-AUG-2001) Department of Genetics, Washington
University, Genome Sequencing Center, 4444 Forest Park Avenue, St.
Louis, MO 63110, USA
7 (bases 1 to 35325)
Waterston,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
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University, Genome Sequencing Center, 4444 Forest Park Avenue, St.
Louis, MO 63110, USA
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Submitted (16-NOV-2001) Department of Genetics, Washington
University, Genome Sequencing Center, 4444 Forest Park Avenue, St.
Louis, MO 63110, USA
On Nov 16, 2001 this sequence version replaced gi:746484.
Submitted by:
                                                                                                                                                                                                                                                                                                                                                                                                                                              Caenorhabditis elegans.
Caenorhabditis elegans.
Caenorhabditis elegans
Eukaryota, Merazoa, Nematoda, Chromadorea, Rhabditida,
Rhabditoidea, Rhabditidae, Peloderinae, Caenorhabditis.
I (bases 1 to 35355)
The C. elegans Sequencing Consortium.
Genome sequence of the nematode C. elegans: a platform for investigating biology. The C. elegans Sequencing Consortium Science 282 (5396), 2012-2018 (1998)
                                                                                                               1086
839 pValValLeuGlnAlaGluAlaThrAlaLeuLysTyrSerAlaIleLeuL 856
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Unpublished
4 (bases 1 to 35325)
Waterston, R.
Direct Submission
Submitted (27-MAR-1995)
5 (bases 1 to 35325)
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Couch, J.
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Waterston, R.
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ALNOHYTHETSFTRRYDGNINGTROYISSLTIKPWQQARYFCFFFENDISFHHF
ALNOHYTHETSFTRRYDDVIVHRQLAAALGYNERSERVPEEIQEICTRCNDTKLASK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           join(75, .395,648. .1856,2043. .2522,2568. .2756,2807. .3061)
/gene="f4888.6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This sequence was finished as follows unless otherwise noted: all regions were double stranded, sequenced with an alternate chemistry or covered by high quality data (i.e., phred quality >= 30); an attempt was made to resolve all sequencing problems, such as compressions and repeats; all regions were covered by sequence from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EASDESAMLYFGVFIHQTGPMKCQAVVLGVMDLSFDVLIVEYGVVKRVYVDENKRDFN
KSTEKLTIYWPADPNAESGNREEFSSSIQMCNVVYVILVPYKSIEVSATIVRPSLEQR
NILKSTLKDMKETGSTILQ"
                                                                                                                                                                                                                                                                 NOTICE: This sequence may not be the entire insert of this clone. It may be shorter because we only sequence overlapping sections once, or longer because we provide a small overlap between neighboring submissions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (SP:SSD1_XEAST, P24276) and to E. coll VACB and Ribonuclease II genes; contains similarity to Pfam domain Ribonuclease II genes; contains similarity to Pfam domain Fbr00773 (RMB), Scoree680.8, E-value-2.2e-201, N=1; coded for by the following C. elegans cDNAs: yk14e11.3, Yk21908.3, yk219h5.5, yk22699.5, yk309h10.5, yk317f1.3, yk31465.5, yk2569.5, yk538h7.5, yk3395c2.5, yk34d2.5, B1175755, yk545b2.3, yk545b2.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Coding sequences below are predicted from computer analysis, using the program Genefinder(P. Green and L. Hillier, ms in preparation). Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The clone sequenced to the left is T24G10, 1600 bp overlap; the clone sequenced to the right is R02F2, 200 bp overlap. Actual start of this clone is at base position 1597 of CELF48E8; actual end is at 3296 of CELR02F2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(join(3404. .3599,3650. .3812,3863. .3996,
4106. .4392,4436. .4760,4808. .4889,4933. .5011))
/gene="F48E8.7"
                                                                                                                                                         Cambridge CB10 IRQ, England email: rw@nematode.wustl.edu and jes@sanger.ac.uk
Genome Sequencing Center
Department of Genetics, Washington University
St. Louis , MO 63110, USA, and
Sanger Centre, Hinxton Hall
Cambridge CB10 IRQ, England
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
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/strain="Bristol N2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NEIGHBORING COSMID INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(3404. .5011)
/gene="F48E8.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:6239"
/chromosome="III"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            more than one m13 subclone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="F48E8"
75. .3061
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join(75. .395,64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NOTES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Source
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gene

FEATURES

CDS

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jóin(10374. 10667,10934. 11087,11140. 11312,11753. 12155,
1244. 12500,12560. 12735,13479. 13739,13786. 14074,
14454. 14626,14736. 14835,15148. 15433,15598. 15737)
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KSLRLSVSGNSEKLKSINLNCKNLVEDEIAPIKRKDARSIONPFKKYSIPDEITEQIF
SNLKKKDLLSAMLVCHRFYGIGHKSRNWIITDAQDRPISEISLIALSQRKIKVLRLAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               THE CLIENT AT A VECTOR TO SHARE AND A VECTOR TO SHARE A VECTOR AND A VECTOR A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LDDHVAICIAENRGLRELDISMTNGITANGASLIFRNCKDLQQLNLAWCGITQPIVTY
IIHSIGEKLKKLNLSGTVRNFGINNKHIEILAAKSNYYTDLDLSDNVEISDPGLAVIL
NKFPRLTTISLNRCYGLDPNMYVHFNSKPSLYYLNYHGCVSDTNMELFLEMCSNLKVN
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YYISSYVEVEKPCYPKREQFSYPERLARSOŞNYKK KGOĞPERKEBYRQLLERQ
LEEKÇKAEESQŞVLTVKKKKRÖGRADERNAMTKSQNYKLHIPDVVKRINDENYHAAHF
NLLVAGLADYDTVUDENRGHLMYYFHDPSWPRNQFPKDIMATAVQNGYLSEVQKNLKG
TQYRRGADDYDELVELTHFKTGFEDLOSANLYTPAMDIYDENYFICKYPDOPYKMIYDLY
EFYHEREDLIVAGSLRADOYTEMLKILE TEMLYFKYSYPDANIYDENYDLY
EFYHEREDLIVAGSLRADOYTEMLKILE KORYKSKFPMGNLARSLYILLDEWEDLI
LELSTNGLESELLDSSSPNYKALIYDNYDIGNASPEQLKKTKNGKNLKFTVSYSAQRDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AKADRILRADERLVEVALLSTSRLELLDLSRTNLTARQMQIMLKPCQKLKCLSIEGNQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MIIYFLQLFLLPSTTATAGVFDLAEYRRVSYDANIGENFLWFAP
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                                            Score=14.1, E-value=0.15, N=1; PF00560 (LRR), Score=19.7, E-value=0.023, N=3; coded for by the following C. elegans cDNss: yk120d4.3, yk120d4.5, yk26la3.3, yk26la3.5, yk866f7.3, yk366f7.5, yk423a12.3, yk423a12.5, yk497a12.3, yk1314.5, yk513f4.3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IRRECKFFONTOFFYFLSNLFLCKPPALFIMSVVEEATDDALYPIATLIDELRNEDYT
LRLNSIRKLSTIALALGVERTRNELIOPLITDITYDEDEVLVLAEQLGNFTPLVGGPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HVHCLLLPLENLATVEETVVRDKAVESLRKIADKHSSASLEEHFVPMLRRLATGDWFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EIEAEFQQLLTPIYKLLSVSALMIQWFQCRRPNYFHVHPPSEEHLEPSDTTEDFIFHM
NLARDMSRFARLMTEVFVVKIQDFTKWRNDKPIAERFVEDFIVWPMPPHATTDANENA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FINLHKDLGPQLILEVKERIWNSKVEKYRTEYWTKDYKMRRQAQSMQGLMKDLLSMKD
'note="contains similarity to Pfam domain PF00646 (F-box)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
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gene

CDS

gene

CDS

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gene

CDS

## EDMNQVLDMLDKAGLSKKGNFSF"

756	
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806	TGTCTCATCACCATCGGAGCCATTGTTCATATCCTTGAGAAAAC
242	erargalaalarhrGlylleLeuLysLeuLeualaaspLys 255    :::   :::       :::
256	AsnSerAspLeuPheLysLysTyrAlaLeuPheSerProSerAspHisAr 272
272	rgileTyrValProL        GAATTCTCATTCCAA
289	hrargProLysAspPhealaAsnThrLeuPheIleCysArgIleIleAsp 305::
306 1035	TrpLysGluAspCysAsnPheAlaLeuGlyGlnLeuAlaLysSerLeuGl 322
322	yGlnaladlyGluIleGluProGluThrGluGlyIleLeuThrGluTyrG 339
339 1135	lyvalaspPheSeraspPheSerSerGluValLeuGluCysLeuProGln 355   :::
356 1185	SerLeuProTrpThrIleProProAspGluValGlyLysArgAr 370 ::
370 1235	9AspLeuargiysAspCysilePheThrileAspProSerThralaarga 387
387	spLeuaspaspalaLeualaCysargArgLeuThrasp
400	GlyThrPheGluValGlyValHisIleAlaAspValSerTyrPh 414
414	evalProGluGlySerSerLeuAspLysValAlaAlaGluArgAlaThrs 431  :::       :::::
431	erValTyrLeuValGlnLysValValProMetLeuProArgleuLeuCys 447   ::::                  :::
448 1485	GluGluLeuCysSerLeuAsnProMetThrAspLysLeuThrPheSerVa 464
464	lileTrpLysLeuThrProGluGlyLysIleLeuGluGluTrpPheGlyA 481 ::::::   :::::            TGIATTCAAAATGAGCTACGAAGCCGAGCTGTATGATGTTTGGTTTGGAA 1584
481	rgThrIleIleArgSerCysThrLysLeuSerTyrAspHisAlaGluSer 497   ::::::            GATCTGTTATCAGATCCCGTGTTAAACTTGCCTACGAACATGCACGAGAT 1634
498	MetileGluAsnProThrGluLysileProGluGluGluLeuProProll 514

82		2520
7	•	733
2 2 2 8	yrSerGluGlnProAspValGluProAspThrLeuGlnLys73	719
9 78	gargphealaaspValIleValHisArgLeuLeuAlaalaalaLeuGlyT 71     :::	702
2 28	HistyralaLeuasnValProLeuTyrThrHisPheThrSerProllear 70    :::	686
5 78	etAlaLeuTyrPheCysSerGlyMetLeuGlnAspGlnGluGlnPheArg 68 ::             :: :: :: :: ::: :: :: ::	669
31	rleualaarglysGluValLeuThrasnMetTyrSerArgProMetGlnM 66 ::::::: ::::   :::::              TATGTGCATTCGACAAGTAATTTCCTCATTGACAATTAAGCAATGCAAC 23	652
2 81	GlyalaLeuAsnLysSerLeuThrLysThrPheGlyAspAspLysTyrSe 65	636
5 31	euValGluPheCysAspGlnMetGlyLeuProMetAspValSerSerAla 63 :::::	619 2182
9 81	nalaLeuLeuargargHisProProProGlnThrLysMetLeuSeraspL 61::	602 2132
2 31	LeualaasnMetalaValalaHisLysIlePheargThrPheProGluGl 60	586 2082
5 81	TyrArgAspSerAsnLysLeuValGluGluPheMetLeu 58 :::	573 2032
31	CAAAAATCGGAAATTTAAAAAGAATTGCCAATTTTATAAAATACAAATGT 20	1982
8	57	572
2 81	ACATITITICGGITCTAGCAACAAAAAGTAATCCATAAAITTAGATTIT 19	5/2 1932
31	AAAATGTGTTTTTATATTAATTTTTGTTTTCAAACAGCAATTTTTTGGTC 19	
8	57	572
2 81	uproGlnGlyCysHisIleTyrGlu57             CCACAAGGAGTTTCTATATACGAGGTTAATAAACAGTTTTTTGTTAAAG 18	564 1832
31	ArgleuAspGlnLeuLysLeuAlaPheThrLeuAspHisGluThrGlyLe 56	548 1785
7 84	isSerIlealaLysGlnLeuArgArgGlnArgPheValAspGlyAlaLeu 54                :::	531 1735
1 3.4	eSerProGluHisSerValGluGluValHisGlnAlaValLeuAsnLeuH 53      :::::             TrcagatGaaatacgccttttgagatcaaggaaaagactctgatgttgc 17	514 1685
84	TICAICGAGAACCCGGAGAAGGACTICACAIGCGACGAGGTICCCGAIAT 16	1635

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(URL, http://www.sanger.ac.uk/Projects/S_pombe/)
Protein coding regions (CDS) have been predicted with the help of computer analysis using the Genefinder program in PomBase (an ACEDB database) with additional predictions for the branch-acceptor sites supplied by the program Sp3splice. CAUTION: It is possible that for any individual CDS we may have underestimated or overestimated the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear PLN 17-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40s ribosomal protein, aminotransferase; cornichon homolog; Homoloox, lcb2; LTR; mitotic control protein; mRNA processing; phosphotransferase; proteolipid; ribonuclease II RNB family; rna binding; rps8; serine palmitoyltransferase 2; serine/threonine protein kinase; small nuclear ribonucleoprotein; splicing; tRNA-Met; tRNA-Ser; ubiquitin regulatory domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Notes:
Details of yeast sequencing at the Sanger Centre are available on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Darrell, B.G., Rajandream, M.A. and Wood, V.

Barrell, B.G., Rajandream, M.A. and Wood, V.

Direct Submission

Submitted (13-SE-1997) Schizosaccharomyces pombe chromosome I

sequencing project, Sanger Centre, Wellcome Trust Genome Campus,

Hinxton, Cambridge CB10 1SA E-mail: barrell@sanger.ac.uk
                                                                                                                                       2766 GATTTCAAACAATGACGAAAAAAAATCCGAATAATTTCAGAAAATGAAG 2815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                :: :::::||| |||:::||| ::
2916 TGTGCAACGTGGTTACGTGATTCTC...GTGCCGTACAAAGCATTGAA 2962
                                2816 CGAGACTTCAACAAATCGACCGAGAAGCTTACCATTTACTGGCCAGCAGA 2865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fission yeast.
Schizosaccharonyces pombe
Bukaryota; Fungi; Ascomycota; Schizosaccharomycetes; Schizosaccharomycetes; Schizosaccharomycetales; Schizosaccharomycetaeee;
                                                                                                                                                                                                                                                                                                                                                                                                                                        811
                                                                                                                                                                                                                 771 MetValMetGlyValLeuAsnGlnAlaPheAspValLeuValLeuArgPh 787
                                                                                                                                                                                                                                                                                                                           eGlyValGlnLysArgIleTyrCysAsnAlaLeuAlaLeuArgSerTyrS 804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ......ProGluLeuThrLeuValTrpGluProAs 821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         821 pAspLeuGluGlu......GluProThrGlnGlnValIleThrI 834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    834 lePheSerLeuValAspValValLeuGlnAlaGluAlaThrAlaLeuLys 850
737 sAsnAspArgArgMetAlaSerLysArgValGlnGluLeuSerIleGlyL 754
                                                                                                          euPhePheAlaValLeuValLysGluSerGlyProLeuGluSerGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                     804 erPheGlnLysValGlyLysLys.....
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           851 TyrSerAlaIleLeuLysArgProGlyLeuGluLys 862
||||||| ::: ||||||:::||||||:::
2963 GTCAGCGCGACAATTGTTCGTCCGAGTCTCGAGCAA 2998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S.pombe chromosome I cosmid c2C4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Schizosaccharomyces.
1 (bases 1 to 35000)
Oliver, K. and Harris, D.
Unpublished
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LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq_name: gb_pl:SPAC2C4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
ACCESSION
VERSION
KEYWORDS
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AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
JOURNAL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                          754
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MTGATLTVRVIRNEEYRTLKNVVFHDIDLATTTVDQFKKIIDER
IQTDPSLKIYRTTHFDTIKIYVKAQQHKTQNLAINLDHDDWILNDGAKTLSLCGIENE
TELSYFELAAYKAYQANPVQKWL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          join(6194. .6314,6402. .6685)
/gene="SPAC2C4.05"
/note="sPAC2C4.05, len:134, SIMILARITY:Saccharomyces
cerevisiae, ERWA_YEAST, er-derived vesicles protein
errl4.er-derived vesicles protein erv14., (138 aa), fasta
scores: opt: 366, E():7.7e-19, (36.8% identity in 133 aa)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(4803. 5180)
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/gene="SPAC2C4.04c, len:125, SIMILARITY:Saccharomyces
/note="SPAC2C4.VK54_YEAST, hypothetical 18.4 kd protein, (155
aa), fasta scores: opt: 355, E():4.5e-19, (45.3% identity
                                                                                                                                                                                                                                                                      SMT2_HUMAN, small nuclear ribonucleoprotein smd2, (118 aa), fasta scores: opt: 502, E():2.3e-30, (68.5% identity in 111 aa)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="ctaatggctcttctgttttag, splice branch and acceptor"
complement(3462. .3467)
                                                                                                                                                                                                                                        SIMILARITY: Homo sapiens
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3626. .3630))
/gene_"SPAC2C4.03c"
                                                                                                                      complement(join(3105. .3233,3295. .3407,3468. .3568,
3626. .3630))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="ctaatattcttag, splice branch and acceptor"
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/note="Match to PF01423 Sm, Sm protein Score 42.09"
complement(3289. .3294)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4230. .4326
/note="tRNA Ser anticodon TGA, Cove score 78.71"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4334. .4405
/note="tRNA Met anticodon CAT, Cove score 69.52"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="ctaataatttag, splice branch and acceptor" complement(3620. 3625)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="gtaata, splice donor sequence"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="gtatac, splice donor sequence"
complement(3569, 3580)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4267. .4281
/note="intron tRNA Ser anticodon TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="gtatgt, splice donor sequence"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Join(6194. .6314,6402. .6685)
                                                                                                                                                                   3626. 3630))
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="SPAC2C4.04c"
complement//on
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/gene="SPAC2C4.03c"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="SPAC2C4.03c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tRNA-Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="SPAC2C4.03c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="SPAC2C4.03c'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (3462.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aa), fasta s
in 128 aa)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="
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GIAVVVVGYPACPLLTSRVRFCFSASHNKADMDYFLRACDEVGEKLÖLKFSTGAAGED
VGKTNUPERKKKNGWFKPPRWKIEDVLKHGVHDALTQ*
1668. . 2552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LIIIGHVRDFECKRFHKDDYKYLKDNIGYAPLYNHFDNFYVRRLOHRINDCFSRPTMG
VPCRVIRLANRYSTDSNSTFKLTGDTSLALNVSSYNYLGFAQSHGPCATKVEBAMGKY
GLSTCSSNAICGTYGLHKEVEELTANFVGKPAALVFSQGFSTNATVFSTLMCPGSLII
                                                                                                                                                    (complementary strand).

The more significant matches with motifs in the PROSITE database are also included but some of these may be fortuitous.

The length in codons is given for each CDS.

IMPORTANT: This sequence MAY NOT be the entire insert of the sequenced clone. It may be shorter because we only sequence overlapping sections once, or longer, because we arrange for a small overlap between neighbouring submissions.

Cosmid c264 overlapped at the 5' end by cosmid c21E11 and at the 3' end by cosmid c25G10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="SWISS-PROT:009929"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="mAQADFVSPTSIDVSEKKEVEFHKKVDHVENPPLSTESAKLEAE
EVAAEKLNSEHLLENEFAPITDPTHRRVSKNPDGAELFQFEDEPSYYYVVATYLTYLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SDELNHTSIRFGARLSGANIRVYKHNDMTDLERVLREVISGGQPRTHRPYSKILVVIE
GLYSMEGNFCDLPRVVELKNRYKFYLFIDEAHSIGALGPRGGGICDYFGISTDHVDIL
MGTFTKSFGAAGGYISATPNIINKLRVTNPGYVYAESMSPAVLAQIKSSFLEIMDNSP
                                                                                                  SP (S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          //oute="Match to PF00222 aminotran_2, Aminotransferases foots" Score 305.25" 2151. .180 /gene="lcb2"
                                                                                               CDS are numbered using the following system eg SPAC5H10.01c. SP pombe), A (chromosome 1), c5H10 (cosmid name), .01 (first CDS),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pyridoxal-phospha te attachment site"

555. .2678
/gene="tcb2"
/note="PS00017 ATP/GTP-binding site motif A (P-loop)"
                              number of introns/exons or we may not have chosen the correct splice donor/acceptor sites.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="PS00599 Aminotransferases class-II
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/db_xref="G1:2414613"
/db_xref="GNISS-PROT:Q09925"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Schizosaccharomyces pombe"
/strain="972h-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="SPAC2C4.02; SPAC21E11.08"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="SPAC21E11.08"
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/note="SPAC21E11.07"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'clone="cosmid c2C4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="SPAC2C4.01"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /label=SPAC2C4.01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/label=lcb2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="lcb2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /partial
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/gene="SPAC2C4.05"

/note="gratgt, splice donor sequence"

6381...6401

/gene="SPAC2C4.05"

/note="ctatcttttccctatttag, splice branch and acceptor"

7647...8088

/note="S.pombe small cytoplasmic ribosomal (slrl+ gene)
                                                                                                                                                                                                                                                                                                                                                12673 CACTGAGATGGTATCATCCAATGCGAAAAAGTCAGTATACCCGGTTGTACT 12624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12623 ACGACTCTGCAACGGTTAAAAAAGGATTAAAAAGGGGTACATTATTAAA 12574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12413 CGAATTTTTTACAGAATGGT......GTCGAGAAAGTCAAAATAAAA 12373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12372 GATCATGACGATGAG.....TTAGGTGGAGCAATGGAGCA 12338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12426 .......CCCACTGAAAAT 12414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    87 rProAspGlyAspArgAspIlePheIleAspGlyValValAlaArgAsnA 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            104 rgAlaLeuAsnGlyAspLeuValValValLysLeuLeuProGluAspGln 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 TrpLysAlaValLysProGluSerAsnAspLysGluIleGluAlaThrTy 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         154 erArgLysGlyTrpSerGlyProAspValIleIleGluAlaGlnPheAsp 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  171 AspSerAspSerGluAspArgHisGlyAsnThrSerGlyLeuValAspGl 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               187 yValLysLysLeuSerIleSerThrProAspArgGlyLysGluAspSerS 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54 etSerLysGluAspValSerGluGlyLeuLysArgGlyThrLeuIleGln 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35 LysLysSerLysAsnLysSerMetArg......43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71 GlyValLeuArglleAsnProLysLysPheHisGluAlaPhelleProSe 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ......GlyLysLysLysSerIlePheGluThrTyrM 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12453 ......Gregaaccreteateaarateacaec......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          137 rGluAlaAspIleProGluGluGlyCysGlyHisHisProLeuGlnGlnS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        to: 35000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length: 794
Gaps: 19
Percent Identity: 35.642
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Align seg 1/1 to reverse of: SPAC2C4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_block:
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Percent Similarity: 64.484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quality: 1198.50
                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                alignment_scores
                                                                                                                                                                                                                                                                                                     rRNA
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0	GGTCATTAAAAAATGTAGAATATGTTTCCAAAAAATCCTCGTACGCGAT	12160
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200	TICELICCRESSORIANCELCICCCIIIALCRCRRIICACRESSORIAIG	705
Ö	TITAAGCGATITAAGTGGTGAAAATTGGATTGAAAATATTTTGAAACA	· (7
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34	heSerSerGluValLengluCvsLenBroGlnSerLenBroTrnThrI	1 5
0	::	· -
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11862	CATGAGGAAATAAAAAAAGGAAGATTTAAGAAATGAGTTAA	11813
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11612		11563
462	PheServallleTrpLysLeuThrProGluGlyLysIleLeuGluGl 	477
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783 euValLeuArgPheGlyValGlnLysArgIle 793

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724 10789	pvalGluproaspThrLeuGlnLysGlnalaaspHisCysAsnAspArgA ::::: ::: ::: ::: ::: TATTGACAAAAAATTGTTGGTTAGTGGCTGCACATTGTAATGAAAGA	741 10740	
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                                                                                                                                                                                                                           PAT 07-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo Sapiens

Bukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1140)

Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.

Nucleic aid molecules which code proteins influencing bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUGUED DE GOOGH A 3 07-0CT-1999;
Patent: WO 9950284-A 3 07-0CT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WITH THOMAS (DE)
LOCATION/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        611
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                                                                                                                                                                                                                           linear
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DEFINITION Sequence 3 from Patent W09950284.
ACCESSION AX015901 GI:10041643
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ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
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TITLE
                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
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678 euGlnAspGlnGluGlnPheArgHisTyrAlaLeuAsnValProLeuTyr 694

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The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Cheuk,R., Chen,H., Kim,C.J., Koesema,E., Meyers,M.C., Shinn,P., Banh,J. Bowser,L., Dale,J.W., Goldsmith,A.D., Jiang,P.X., Jones,T., Karlin-Neumann,G., Lam,B., Lee,J.W., Lin,J., Liu,S.X., Miranda,M., Nguyen,M., Onoders,C.S., Palm,C.J., Pham,P.K., Quach,H.L., Southwick,A., Tang,C.C., Toriumi,M., Yamada,K., Yamanura, Y., Yu,G., Yu,S., Davis,R.W., Theologis,A., and Ecker,J.R.
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                                                       "General to 2992)
Charter to 2992)
Cheuk, R., Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Banh, J.,
Bowser, L., Carninci, P., Dale, J. M., Goldsmith, A.D., Hayashizaki, Y.,
Ishida, J., Jiang, P.X., Jones, T., Kamiya, A., Karlin-Neumann, G.,
Kawai, J., Lam, B., Lee, J.M., Lin, J., Liu, S.X., Miranda, M.,
Narusaka, M., Nguyen, M., Onodera, C. S., Palm, C. J., Pham, P.K.,
Ouach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Tang, C.C.,
Toriumi, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Shinozaki, K.,
Direct Submission
                                                                                                                                                                                                                                                                                                                                                Submitted (19-SEP-2001) Salk Institute Genomic Analysis Laboratory (SIGnAL), Plant Biology Laboratory, The Salk Institute for Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GIYKLPTVFQDRPQLTSVADNLNYRHRNAQMAGRASVELYVLIYFRTRPTDEEARVVK
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAS (RAFL cDNA : 'RIKEN Arabidopsis Full-Length cDNA') : Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="putative mitotic control protein dis3"
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Unpublished
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2888. 2992
a 619 c
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86. .2887
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BASE COUNT
ORIGIN
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CDS
      TITLE
JOURNAL
REFERENCE
AUTHORS
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JOURNAL
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Bukaryota; Viridiplantae; Streptophyta; core eudicots;
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I (basea I to 292).
Cleuk, R., Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Banh, J.,
Bowser, L., Carninci, P., Dale, J.M., Goldamith, A.D., Hayashizaki, Y.,
Ishdaa, J., Lam, B., Lee, J.M., Lih, J., Liu, S.X., Miranda, M.,
Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Pham, P.K.,
Quach, H.L., Sakural, T., Sakucu, M., Seki, M., Southwick, A., Tang, C.C.,
Toriumi, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Shinozaki, K.,
Davis, R.W., Theologis, A. and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AY057479 2992 bp mRNA linear PLN 07-OCT-2001 Arabidopsis thaliana At2917510/MJB20.7 mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                761
                                                                                                                                                                                                                                                                                                                                                                                                                                                         811 sProGluLeuThrLeuValTrpGluProAspAspLeuGluGluProT 828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     845 GluAlaThrAlaLeuLysTyrSerAlaIleLeuLysArgProGlyLeu.. 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    861 ......GluLysAlaSerAspGluGluProG 869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               715 GGGCCACCTGGGCCCTGAGAAGGAGGAGGAGGAGTCTGACGGTGAGCCCG 764
                                                                                spThrLeuGlnLysGlnAlaAspHisCysAsnAspArgArgMetAlaSer
                                                                                                                                                                                                                                                                                                                                             115 ATACCCTGCAGAAAACAGGCGGACCACTGTAACGACGCCGCATGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                LysArgValGlnGluLeuSerIleGlyLeuPhePheAlaValLeuValLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            761 sGluSerGlyProLeuGluSerGluAlaMetValMetGlyValLeuAsnG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CysAsnAlaLeuAlaLeuArgSerTyrSerPheGlnLysValGlyLysLy
                                                                                                                                                                                                  gLeuLeuAlaAlaAlaLeuGlyTyrSerGluGlnProAspValGluProA
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alignment Percent	_scores: 0401.50 Length: 798 Ratio: 2.183 Caps: 16 Similarity: 61.404 Percent Identity: 32.832		
alignment US-09-64	_block: 7-377-9 x AY057479		
Align se	g 1/1 to: AY057479 from: 1 to: 2992		
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26	ralavalGlyalaSerProGlyAspLysEysSerLysAsnLysSerMetA :::	etA 43 715	
43	rgGlyLysLysSysSerIlePheGluThrTyrMetSerLysGluAspVal    :::        :::::  AAGAGGAAACTTATATACCAAGAGCATAAGCCCATGTCTGAGATT	Val 59 ::: ATT 760	
60	SerGluGlyLeuLysArgGlyThrLeulleGluGlyValLeuArglleAs :::	eAs 76 :   CAA 810	
76	nProLysLysPheHisGlualaPheIleProSerProAspGlyAspArgA 	rgA 93 ::: AAG 860	
93	spllePheileAspGlyValValAlaArgAsnArgAlaLeuAsnGl 	yAsp 109       TGAT 910	
110	LeuValValValLysLeuLeuProGluAspGlnTrpLysAlaValLys :::   :::   ::	s 125    GGC 960	
126 961	ProGluSerAsnAspLysGluIleGluAlaThrTyrGl	lua 139   TGG 1010	
139	roGluGluGlyCysGlyHisHisProLeuGln	rArg 155	
15	VTrpSerGlyProAspValllelleGluAlaGlnPheAsp         GAC	se 172 GT 102	
172	AspargHisGlyAsnThrSerGlyLeu`     :::        CCTAGAACCTCAAATTTTATCCCATGAA	alL 189   ATA 1073	
189	ysLysLeuSerIleSerThrProAspArgGlyLysGluAspSerSerThr    	Thr 205 ::: GCC 1084	
206	ysAspGluAsnThrProlleProGln	lyLe 222 1090	
222	ysSerLeuGlnLysSerAlaLysValValTy :::        ::: CSTCCATCAGGCCGTGTAGTCGG	::: 239 :::: :GTA 1124	
239	ystysHisSerArgalaalaThrGlyIleLeuLysLeuLeuAlaasp:::::        :::	aAsp 254 : ACTA 1168	
255	LysasnSeraspLeuPheLysLysTyralaLeuPheSerProSeraspHi::::::::::::::::::::::::::::::::::::	spHi 271  :: NTCG 1218	

	1 - Arana Droll of the John Manual Droll as Jene Carle Droll as Bending Supplemental Control of the Control of	
121	1 SALGWALTLOANGLIELTY MAINTONEMLYSASPY YSTLOANINSPELIEN 	0
28	8 etThrArgProLysAspPheAlaAsnThrLeuPheIleCysArgIleIle	304
125	6CAGAACCTTTTGGATATGAGGATAGTAGTGGCAGTTG	1294
30	5 AspTrpLysGluAspCysAsnPheAlaLeuGlyGlnLeu:::    ::::: :::::     ::: 5 TCCTGGGACCGTCAATCTCGATATCCTTCTGGTCATAAC	321 1344
m (	1 uGlyGlnAlaGlyGluIleGluProGluThrGluGlyIleLeuThrGlu'	38
134	<pre>5 CGGCAAAAIAGGTGACAAGGAAACTGAAACAGAGGTTGTGTTGATACA 8 yrGlyvalAsppheSerAspPheSerSerGluValLeuGluCysLeuP                                      </pre>	54 7
35	5 AIGATGTIGACIACICGCCGTTCTCTCTCAAGTICTGGCATGCTTGCC 5 GlnSerLeuPrOTrpThrIleProProAspGluValGlyLysA 5 GlnSerLeuProTrpThrIleProProAspGluValGlyLysA 6 GlnSerLeuProTrpThrIleProProAspGluValGlyLysA 7 GlnSerLeuProTrpThrIleProProAspGluValGlyLysA 7 GlnSerLeuProTrpThrIleProProAspGluValGlyLysA 7 GlnSerLeuProTrpThrIleProProAspGluValGlyLysA 7 GlnSerLeuProTrpThrIleProProAspGluValGlyLysA 7 GlnSerLeuProTrpThrIleProProAspGluValGlyChulleProAspGluValGlyChulleProAspGlu	369
+ m 4	9 gargaspLeuargLysaspCysllePheThrlleAspProSerThrala.   :::	86
તે છે	rappleuAspAspAlaLeuAlaCysArgArgLeuThrAspGlyThrPh	02 59
40	GluvalGlyvalHisIleAlaAspvalSerTyrPheV    :::	419 1641
41	rSerLeuAspLysValAlaAlaGluArgAlaThrSerVal 	436 1691
43	LysValValProMetLeuProArgLeuLeuCysGluGluLeuC ::: ::          :::          :::::  GGCGGTATTGACATGCTTCCCAAACCTTTAACTGAAGATATT	452 1741
174	OMELThrasplysleuthrPheSerVallleTrpLy :::::::::   :::            IGATGTGGAAAGCCTTGCATTCTCGGTTATTTGGGA	469 1791
46	JyLysIleLeuGluGluTrpPheGlyArgThrIleIl 	486 1841
184	ysThrLysLeuSerTyrAspHisAlaGlnSerMetIleGlu ::: :: ::: ::: :::::: CTGCAGCATTGTCCTATATTGAAGCTCAGGCTCGGATGGAT	502 1888
in a	3 ThrGluLyslleProGluGluGluLeuProProlleSerProGluHisS	0 0
	9	20 0
51 189	19 YVALGIUGIUVAHIISGINALAYATLONASULOHIISSGITEALALYSG 	536 1946
53	InargPheValaspGlyAlaLeuargLeua 	552 1996
19.0	isGluThrGlyLeuProGlnGlyC     ::   GGAGATCATGATCTCTTAACA	569

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Percent Similarity:
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Drosophila melanogaster

Bukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;

Bukaryota; Medazoa; Arthropoda; Tracheata; Hexapoda; Insecta;

Pteryota; Neopierar, Endopterygota; Diptera; Brachycera;

Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

[ bases 1 to 3597)

Chases 1 to 8757

Champe,M., Broketein,P., Hong,L., Agbayani,A., Carlson,J.,

Champe,M., Chavez,C., Dorsett,V., Farfan,D., Frise,E., George,R.,

Gonzalez,M., Guarin,H., Li,P., Liao,G., Miranda,A., Mungall,C.J.,
                                                                                                                  2047 TATGTATCAGATTCTCGAAGCAAACCAAATGGTTGAGGAATTCATGCTTG 2096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ||||||| ::: :::::|||
2585 TCAGTACAGCTGTACGTTTACTTC......AGAAC 2619
                                                                                                                                                                                                                                                                                                                                                                                                           2247 AAGCTTTGGCTGATTCACTGGACCGAGCTGTGGGTGAGGATCCATATTTC 2296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2297 ......AACAAGTIGATCAGGATATTGGCAACTAGGTGCATGACGCA 2337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2338 GGCTGTGTACTTCTGTAGTGGGGATCTCAGTCCTCCCGAA...TATCATC 2384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2485 ATACAAGCTTCCAACGGTGTTCCAAGACAGACCTCAACTTACTAGTGTTG 2534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          653 LeuAlaArgLysGluValLeuThrAsnMetTyrSerArgProMetGlnMe 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      569 slleTyrGluTyrArgAspSerAsnLysLeuValGluGluPheMetLeuL 586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       703 ArgPheAlaAspVallleValHisArgLeuLeuAlaAlaAlaLeuGlyTy 719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              719 rSerGluGlnProAspValGluProAsp.....ThrLeuGlnLysGlnA 734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                686 isTyrAlaLeuAsnValProLeuTyrThrHisPheThrSerProIleArg 702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       734 laAspHisCysAsnAspArg.....ArgMetAlaSerLysArg 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   747 ValGlnGluLeuSerIleGlyLeuPhePheAlaValLeuValLysGluSe 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             763 rGlyProLeuGluSerGluAlaMetValMetGlyValLeuAsnGlnAlaP 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster LD37985 full length cDNA. AY058669 AY058669.1 GI:16198178 FLI OnNA.
                                                                                                                                                                                                           636 lyAlaLeuAsnLysSerLeuThrLysThrPheGlyAspAspLysTyrSer
                                                                                       586 euAlaAsnMetAlaValAlaHisLysIlePheArgThrPheProGluGln
                                                                                                                                                                                                                                                                          uValGluPheCysAspGlnMetGlyLeuProMetAspValSerSerAlaG
                                                                                                                                                                                603 AlaLeuLeuArgArgHisProProProGlnThrLysMetLeuSerAspLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2670 TTATAGTATTTGTCCCCAAGTATGGAATGGAGGCCCTGTTTAT 2713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      780 heAspValLeuValLeuArgPheGlyValGlnLysArgIleTyr 794
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LOCUS AY058669
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This clone was sequenced as part of a high-throughput process to sequence clones from Drosophila Gene Collection 1 (Rubin et al., Science 2000). The sequence has been subjected to integrity checks for sequence accuracy, presence of a polyA tail and contiguity within 100 kb in the genome. Thus we believe the sequence to reflect accurately this particular cDNA clone. However, there are artifacts associated with the generation of cDNA clones that may have not been detected in our initial analyses such as internal priming, priming from contaminating genomic DNA, retained introns due to reverse transcription of unspliced precursor RNAs, and reverse transcriptase errors that result in single base changes. For further information about this sequence, including its location and relationship to other sequences, please visit our Web site (http://fruitfly.beak.edu.) or send email to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SKDLSANNAVI PLOPLMIWA BENPHPMOSOPSARSNSKOA I PYGYPVSTPANYAMOLP
YHARASYQATWO I PCLQPLSHLHVVSSPSHRLI AKKKSKRALKNEVEALQDMVKHLS
HLSPDVARYACQLI RKNEI LSQLEWSQTRSEAHPQQVGYGRHRHDSRYSATNNGSHY
QOQPKLGRRQRNSKKNGSSGSNGTQSQKTELEMARSY I NKI VQRHVGMDHQLSEDLIF
KGNSSDLEAHAQHVAAGYGR LYBEETRVNRKNNRQAFI I WSTPREALERDGI YYLLPV
ARRYAFDGDKVRAFVLNPGAQGSSKTAEPSSGEI SGGKPSLSLADGEELSDDTESQGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ESDTDNVVVISSDNCPKAFVTÄTTKRTELRQIVGTISFTNPTKLCDDQLEYKREPYDL
RVPMVYVPKDACAAHIGNKQQIDVSGLLYLAHILETDCNGHCIAELIQPVGRVGNLDD
ELKAILFHNGLRDIKPFEQRFIDIYSQPPPPISQEDLRQRKDLRKMCIFTIDPMTARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LDDAVSIEKLGDNEYEIGVHISDVSHFLIEDNELDNIVKERSTSIYLANEVIHMLPQS
LCMRCSLLPGQDKFAFSVFWRMNGKGVMLQKKPEFCRTVINSCSQFAYEHAQKIIDNP
NERFTENDFPTILNGFNPDDIRNRVLMLHDIASSIRKTRLDNGALTINNAKLRFLLDP
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LREKLLALGFELDYSSSKALQESMVRLCNEAPNPVAMNACLSQLLMKPMARATYFCSE
GKSEPADLWHYALSIPIYTHFTSPIRRYPDILVHRLLAAALKYCTPPKRTPDDLHTLT
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INYKMQKVLVDTHGVPNYILIAERNLKQSPRKLQLLSVVPICLIIMDQKLTGFLKMEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MSETSSVNVDADRDCRRIEGLRQRSQRLAARLQQMQREMESNAS
Nunoo'J., Pacleb,J., Paragas,V., Park,S., Phouanenavong,S., Wan,K.,
Yu,C., Lewis,S.E., Rubin,G.M. and Celniker,S.
Direct Submission
                                                                                             Submitted (08-0CT-2001) Berkeley Drosophila Genome Project, Lawrence Berkeley National Laboratory, One Cyclotron Road, Berkeley, CA 94720, USA Sequence submitted by:
Berkeley Drosophila Genome Project
Lawrence Berkeley National Laboratory
Berkeley, CA 94720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="CG16940"
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Gaps: 21
Percent Identity: 33.375
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Location/Qualifiers
1. .3597
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/note="Longest ORF"
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Ratio: 2.099
illarity: 62.861
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US-09-647-377-9 x AY058669
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Page 15

## Align seg 1/1 to: AY058669 from: 1 to: 3597

G1 82 :: CA 1043	yV 99  : CA 1093	al 111    TA 1143	G1 127    GA 1193	uG 144 1215	ly 160 1248	Ar 177 TC 1283	es 194 1308	sp 210 :: cg 1320	Le 227	gA 244     CC 1375	Sp 254      AC 1425	ні 271 тт 1457	ю <b>м</b> 288 : :СG 1507	le 303    TA 1557	Ly 319 :: :CA 1601	uT 336  - 'GT 1651	::
GlythrLeuileGlnGlyValLeuargileasnProLysLysPheHisGl 	uAlaPhelleProSerFroAspGlyAspArgAspliePhelleAspGlyV :            GGCCTTTATAATCATGTCCACTGATGGAGAAGCACTGGAGAGGAGTGGCA	alvalAlaArgAsnArgAlaLeuAsnGlyAspLeuVal ::                  TCGTGCTCTTGCCAGTGGCTAGGCGCTATGCCTTCGATGGTGACAAAGTA	ValValLysLeuLeuProGluaspGlnTrpLysAlaValLysProGl 	uSerAsnAspLysGluIleGluAlaThrTyrGluAlaAspIleProGluG   :::::       :: GCCTCGTCTGGTGAAATCTCT	yCysGlyHisHisProLeuGlnGlnSerArgLysGlyTrpSerGl 	lelleglualaglnPheaspaspSerAspSerGluaspar                 :::::   ::: GAGGAGTTTCGGACGATACCGAGTCCCAGGGCTC	9HisGlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIle ::::::::   :::::    TGAGTCCGATACCGACGTGGTC	erThrProAspArgGlyLysGluAspSerSerThrProValMetLysAsp    :::::::: GTGATATCGTCG	11e	ValValTyrIleLeuGluLysLysHisSer    :::     :::::: ::: 3TCATAGCAATAACTAAACGAACTGAGCTC	laalathrGlyIleLeubysLeuLeualaasp 	spLeubheLysLysTyralaLeupheSerProSerAspHi                           . 	SATGVA1ProArgileTyrVa1ProLeuLysAspCysProGinAspPheM            :::          GCGTGTCCCCATGGTCTACGTTCCGAAGGATGCCTGTGCCGCCCCACATCG	etThrargProLysAspPhealaAsnThrLeuPheIleCysArgIle :::::	leaspTrpLysGluAspCysasnPhealaLeuGlyGlnLeualaLy :::::          ::::::::::    :: TCGAGACAGATTGCAATGGCCATCGCATCGCTGAACTAATCCA	SerLeuGlyGlnAlaGlyGlulleGluProGluThrGluGlyIleLeuT :::   ::::   :::::           CCGGTTGCCCGCGTGGGTAATTTGGATGACGAACTTAAGGCAATTCTGT	<pre>yValAspPheSerAspPheSerSerGluValLeuGlu  :::    ::::::    ::::::</pre>
GlyThrLeuI]       GGCCCATTG1	uAlaPheIleE :         GGCCTTTATA	alr :: TCGTGCTCTTC	ValValLysLe ::: ::CGTGCATTCGT	uSerAsnAspl   ::::: GCCCTCGTCT	1uGlyCysGly      GG	ProAspValIl	gHisGlyAsn' ::::::: TGAGTCCGATA	erThrProAs	GluAsnThrPro	uGlnLysSeri	laalaThrGl :::   AGATCGTGGG	LysasnSeras;	sArgValPro	etThrargPro	Ileaspirpli::::::: CTCGAG	sSerLeuGly : :::    GCCGGTTGGC	hrGluTyrGlyVal.
994	82 1044	99	112	127	144 1216	161 1249	177	194	211	227 1333	244 1376	255 1426	271 1458	288 1508	304 1558	319	336

1652	TTCATAACGGTCTCCGGGATATAAAGCCATTTGAGCAACGATTTATCGAC	1701
352	InSerLeuProTrpThrIleProProAspGluV	368
1702	TACTCCCAGCGCCACCTCCGATAAGCCAAGAGATCTGCGTC	1748
368	SARGARGASPLeudrgLysaspCysllePheThrlleAspProSerThra	385 1798
385	argaspleudspaspalaLeudlaCyśargargLeuThra 	0 8
402	yvalhisileala               ::: :GTCCATATATCC	418 1898
418	ySerSerLeudspLysValAlaalaGludrgAlaThrSerValTyrLeuV ::::::      ::::        CAATGAACTGGATAACATAGTGAAGGAACGCTCTACTTATTAG	435
435	alGlnLysValValProMetLeuProArgLeuLeuCysGluGluLeuCys:::::::   :::     :::	451 1995
452	raspLys         GACAAG	468
468	uThrProGluGlyLysIleLeuGluGluTrpPheGlyArgThrI ::: ::    ::	483
483	역 :: 일	499
500	GluasnproThrGluLysIleProGluGluGluLeubroProIleSerPr ::         :::	516 2195
516 2196	OGluHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSerI ::::::::::::::::::::::::::::::::::::	533
533	lealalysGlnLeuargargGlnargPheValaspGlyAlaLeuargLeu      :::::::   :::	549 2295
550	AspGlnLeuLysLeuAlaPheThrLeuAspHisGluThrGlyLeuProGl:::::                            AACAATGCCAAGCTACGTCCTGCTCGATCCAATTACTGGGGAGCCGTT	566 2345
566	nGlyCysHisIleTyrGluTyrArgAspSerAsnLysLk ::: ::::   :::   GTCTTTGAAGTGGAGAAACAGCGAGAGGCTAACCGGCT	583 2395
583	hemetLeuLeuAlaAshmetAlaValAlaHisLysIlePheArgThrPhe	599
600	ProGluGlnalaLeuLeuargargHisProProProGluGluGluGlnalaLeuLeuargargHill	616 2495
616 2496	uSerAspLeuValGluPheCysAspGlnMetGlyLeuProMetAspValS  :::	633 2545
633	erSerAlaGlyAlaLeuAsnLysSerLeuThrLysT       ::       :::::   GCTCGTCTAAGGCGCTCCAGGAGAGCATGGTGGGGT	649 2595

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/note="overlap with BAC clone T5M16
[Ac010704:103165. .103353]."
complement(join(<1. .69,154. .2280,2381. .2449,2524. .2577,
2676. .3055,3215. .>3320))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(join(<1. .69,154. .2280,2381. .2449,2524. .2577,
2676. .3055,3215. .3320))
/gene="T32E8.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LEKGEAFKALFRUNAHNRNEAYCKIDGVPTDILINGNVCQSRAVBEDTVVIKLDPLSL
WPKMGETYTESAAKPEGTINSPPEKDDKKARQKNGITDVBEGFEDGFSKRKSSYLGKGAK
NGVTPSSPPSLDSCLGSFCEQKGNOTAVEKCLGILSPFPHKRPTGQVVAVVEKSLVRB
SIVGLLDVKGWIHYKESDPRKCKSPLSLSDBYVQLMPADPRFPKLIVPPHVLPGSIR
ARLENLDPRLEAELVAAQIVDMGEGSPFPVAQITHLFGRGSELEPQINAILYQNSVCD
SDFSPGSLTSLFRVPWEVPETGTKKRLDRDCVLTIDPSTATDLDDALGVQSLBGGF
FRVGVHIADVSYFYPPETGTKRCHADLCVLTIDPSTATDLDDALGVQSLBGGF
FRVGVHIADVSYFYPPETGTTIRSCCKLSYVLMQRKISMLPPLLSERVGSLSGPGAB
LAFSILWDLNREGDVIDRWIGRTIRSCCKLSYDHAQDIIDGKSDVABNGMPALHGSF
                                                                                                                                                                                                                                                                                                                                                                                      Genes were identified by a combination of several methods: Gene prediction programs including Genscan+ (Chris Burge, http://ccm.081.mit.edu/GENGCAN.html), GeneMarkHWM (Mark Borodovsky, http://genemark.biology.gatech.edu/GeneMark/), GlimmerA (a variant of GlimmerM, see Mihaela Pertea, http://www.tigr.org/softlab/glimmerm_thrm/glimmerm.html, and GeneSplicer (Mihaela Pertea and Steven Salzberg, contact mpertea@tigr.org), searches of the complete sequence against a peptide database and the plant EST database at TIGR (http://www.tigr.org/db/tgi.shtml), Annotated genes are named to indicate the level of evidence for their annotation, Genes with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  similarity to other proteins are named after the database hits. Genes without significant peptide similarity but with EST similarity are named as unknown proteins. Genes without protein or EST similarity, that are predicted by more than two gene prediction programs over most of their length are annotated as hypothetical proteins. Genes encoding tRNAs are predicted as hypothetical proteins. Genes encoding tRNAs are predicted as Simple repeats are identified by repeatmasker (Arian Smit, http://tp.genome.washington.edu/RNAspeatmasker (Arian Smit, Location/Quallifiers)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation-"MKSASSEQSVERIENGHKKKRNRPQKONRRSKQSSVPIEDAHVE
ESLDGRDSSRSKAKDSTSSSKQORPNTDELEAMRASNVAFNSMPPMRAESGYPRRSAS
PLLSSPEVSKQLLSKSCPDPRACEQSPGMNGELFQQIEGSSQRKIFSSHWSLDAVTEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KWCDVTRSVKQLSEISTTLRQKRFRNGALQLENSKPYFLFDEHGVPYDFVTCSRKGSN
FLVEEFMLLANMTAAEVISQAYRASSLLRRHPEPNTRKLKEFEGFCSKHGMDLDISSS
GQLQDSLEKITGNLKDDSVFVDILNNYAIKPMQLASYFCTGNLKDSVAEWGHYALAVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LYTHFTSPLRRYPDIVVHRALAAALEAEELYSKOKOTAIDEGRSCFTGIHFNKDAAES
IEGKEALSVAALKHGVPSTEILSDVAAYCNERKLAARKVRDACDKLYTWFVLKQKEIF
PCEARVMNLGSRFMTVYISKL"
                                                                                                                                                                                                                                                                                                    BAC clone T32E8 is from Arabidopsis thaliana chromosome 1 The orientation of the sequence is from SP6 to T7 end of the BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(1. .3320)
/gene="T32E8.1"
/note="similar to ribonuclease II RNB family protein
                                                                                         Direct Submission.

Submitted (19-JAN-2001) The Institute for Genomic Research, 9 Medical Center Dr, Rockville, MD 20850, USA, cdtown@tigr.org On Jan 19, 2001 this sequence version replaced gi:12280880.

Address all correspondence to:at@tigr.org
Medical Center Dr, Rockville, MD 20850, USA, xlin@tigr.org 3 (bases 1 to 82454)
Town,C.D. and Kaul,S.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Arabidopsis thaliana"
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/db_xref="GI:12323300"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /cultivar="Columbia"
/db_xref="taxon:3702"
/chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="T32E8"
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Arabidopsis thaliana chromosome 1 BAC T32E8 genomic sequence,
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Arabidopsis thaliana
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 82454)
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Direct Submission
Submitted (21-0CT-1999) The Institute for Genomic Research, 9712
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2946 ATACATGCGAGCTGTGGTCATTGAAATATTTCAGCATATGAACGTAG 2995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2796 ACTTAAATATTGTACACGCCTAAACGTACCCCAGATGATTTGCACACCT 2845
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                                                                                                                                                                                                                                                                                                                                                                                                                              700 ProlleArgArgPheAlaAspVallleValHisArgLeuLeuAlaAlaAl 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  749
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           716 aLeuGlyTyrSerGluGlnProAspValGluProAspThrLeuGlnLysG 733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            766 uGluSerGluAlaMetValMetGlyValLeuAsnGlnAlaPheAspValL 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         783 euValLeuArgPheGlyValGlnLysArgIleTyrCysAsnAlaLeuAla 799
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          2596 CCCAATCCTGTCGCAATGAATGCCTGCCTAAGTCAGCTTTTGATGAAACC
                                                                                                                                                         oMetGlnMetAlaLeuTyrPheCysSerGlyMetLeuGlnAspGlnGluG
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                                                                                                                                                                                                                                                                                             683 InPheArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               733 lnAlaAspHisCysAsnAspArgArgMetAlaSerLysArgValGlnGlu
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AC012193.6 GI:12323286
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1998	224	241	254	261 1798	277	290 1698	306 1648	323 1598	340 1548	356	373 1451	390 1401	406	423	440	456 1201	473 .	490
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105	::: ::: ::: ::: ::: ::: ::: ::: :::	1004
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95:	3 AAAGATITAGAAATGGGGCTTTGCAGCTGGAGAATTCGAAGCCTGTTTT	904
52.0	7 ThrLeuAspHisGluThrGlyLeuProGlnGlyCysHisIle :::	573
^	3 rargaspserantysteuvalglugluphemetteureulaanmasnMe	י ס
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29(	silePheArgThrPheProGluGlnAlaL	909
80	AGCAGCTGAGGTTATTTCTCAAGCTTACCGTGCTAGCTCATTGCTCCG	757
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64(	ysThrPheGlyAspAspLysTyrSerLe	656
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306	TTATCGGTTGCTGCTTTGAAACATGGTGTTCCCTCCACTGAAATAC	257
730	GlnAlaAspHisC     GTCGCTGCTTATT	747

BAA ORR al		
747 alGlnGlu	AF330044 Bomo sapid AF330044 AF330044 AF330044 AF330044 human Homo sapid Eukaryota Mammalia, 1 (base) Fozenblum, Syrjacko, Arason Kallioniel Gevelopmer Unpublish Unpublish Sandberg, Sandberg, Submitted Of Human Bethesda,	KKMSADNQLQVIFITNDRRNKEKALEEGIPAFTCEEVVKSLTANPELIDBLACLSEEG NEIESGKIIFSBELPLEKLGOGIKSCTVLOGTFRASRENYLEATVWHENDSEENKEII LOGLKHANRAVHEDIVAVGLLEKSOWARESTVALHDEGONEEDVEKEFTRAKTAV LOGLKHANRAVHEDIVAVGLLEKSOWARESSVULHDEGONEEDVEKEFTRAKTAV SEKMLKPTGRVVGIIKRNWRPYCGMLSKSDIKESRRHLFTPADKRIPRIRIETRQAST LEGRRIIVTALIOGWPRNSRYPGHGYFYRLGDVGFKETFTFALLLEHDVHPOFSGAVLS FLEKMPWSITEKDMKNREDLRHLCICSVDPGFCTDIDDALHCRELENGULEVGYHIAD VSHFTRONALDQESARNGTTYVLCERRIDMYPELLSSNLCSIKCDVDRLAFSCIWEM NHNAEILKTKFTKSVINSKASLITYAEAQLRIDSANMNDDITTSLRGINKLAKILKKRR IEKGALTLESSPEVRFHMDSETHDPIDLQTKELREFNNSNYEEFMLLANISVAKKIHEEF
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1358 c 1521 g 2077 t
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94 IlePheIleAspGlyValValAlaArgAsnArgAlaLeuAsnGlyAspLe 110
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      177 rgHisGlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIle 193
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80 heHisGluAlaPheIle.....ProSerProAspGlyAspArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        110 uValValValLysLeuLeuProGluAspGlnTrpLysAlaValLysProG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               227 euGlnLysSerAlaLysValValTyrIleLeuGluLysLysHisSerArg
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                                                                                                                                                                                     Length: 849
Gaps: 22
Percent Identity: 31.684
                                                                                                                                                                                                                                                                                                                   to: 7320
                                                                                                                                                                                                                                                                                                                     from: 1
                                                                                                                                                     lignment_scores: 1000.50 Quality: 1000.50 Ratio: 1.962 ....! Articy: 60.071
                                                                                                                                                                                                                                                                                                                     to: AF330044
                                                                                                                                                                                                                                                             lignment_block:
US-09-647-377-9 x AF330044
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                                                                                             2364
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                                                                                             ASE COUNT
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us-09-647-377-9.p2n.rge

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294 PheA	laasnThrLeuPhelleCysar     :::         TTCCACATTAGAAGGACGGAGAATTATTGTTGC	306 1250
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323 lnA:::: 1301 ATG	<pre>lnalaGlyGluIleGluProGluThrGluGlyIleLeuThrGluTyrGly :::::                          ::   ATGTTGGAGAAAGAACTGAAACAGAAGTTTTGTTACTTGAACACGAT</pre>	339 1350
340 Val.	ValAspPheSerAspPheSerSerGluValLeuGluCysLeuProGlnSe	356 1398
356 rLe	rLeuProTrpThrIleProProAspGluValGlyLysArgArgAspLeuA :::        .ATGCCTGGAGCATTACTGAAAAGGACATGAAAACGGAGAAGACCTGA	373 1447
373 rgL     1448 GGC	rglysaspCys11ePheThr11eAspProSerThralaargAspLeuAsp 	389 1497
390 Aspi      1498 GAT	AspalaleualacysargargleuthraspolythrPheoluvalglyva 	406 1547
406 lHis     1548 TCA	SIleAlaAspValSerTyrPheValProGluGlySerSerLeuAspL                    IATTGCTGATGTGAGCCATTTATTAGGCCAGGAATGCCTTGGATC	423 1597
423 ysva :: 1598 AAG	ysValalaalacluargalaThrSerValTyrLeuValGlnLysValVal :: :::   :::    :::   aAGAATCAGCCAGAAGAGAACAACTGTGTATCTTTGTGAAAAGAGGATT	439 1647
440 Prob 1648 GAC	OMETLEUProArgLeuLeuCysGluGluLeuCysSerLeuAsnProMe     :::         :::	456 1697
456 tThi :: 1698 CGTC	TThrasplysleuthrPheservalIleTrpLysleuthrProGluGlyL:::   :::               ::::::::::::::	473 1747
473 ysI  ::   1748 AAA	ysileLeuGluGluTrpPheGlyargThrileIleArgSerCysThrLys::       :::     :::::         ::: 	489 1797
490 Leus    -  1798 CTG2	SerTyrAspHisAlaGlnSerMetIleGluAsnProThrGluLysIl :::    :::	506 1845
506 ePro	OGluGluLeuProProIleSerProGluHisSerValGluGluV ::::::::::::::::::::::::::::::::::::	523 1852
523 alHi :: 1853 TTAC	SGInAlaValLeuAsnLeuHisSerIleAlaLysGl 	539 1902
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556 eThr   1953 CCAC	eThrLeuAspHisGluThrGlyLeuProGlnGlyCysHisIleTyrGluT	573

57	3 yrArgAspSerAsnLysLeuValGluGluPheMetLeuLeuAlaAsnMe	80
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210	SProProProGlnThrLysMetLeuSerAspLeuValGluPheC	623 2152
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220	arLeuThrLysThrPheGlyAspAspLysTyrSe	52
223	<pre>ualaargLysGluValLeuThrasnMetTyrSerArgProMetGlnM ::: ::   </pre>	
228	AlaLeuTyrPheCysSerGlyMetLeuGlnAspGlnGluGlnPheArg	685 2325
68 232	LeuTyrThrHisPheThrSerProlleAr :::	702
70	2 gArgPheAlaAspValIleValHisArgLeuLeuAlaAlaAlaLeuGly.	718 2425
71	InProAspValGluProAspThrLeuGln	731 2460
73	2 LysGlnalaaspHisCysasnaspargargMetalaSerLy	5 4
74	<pre>5 sArgValGlnGluLeuSerIleGlyLeuPhePheAlaValLeuValLysG : ::!  ::    :::   : 1 ATATGCCCAACGTGCATCAGTGCTTTTCATACCCAGTTATTCTTCAAAA</pre>	
76	2 luSerGlyProLeuGluSerGluAlaMetValMetGlyValLeuAsnGln:::::    ::::::    ::::::    ::::::	778 2610
77	9 AlaPheAspValLeuValLeuArgPheGlyValGlnLysArgIleTyrCy	795 2658
79	5 sAsnAlaLeuAlaLeuArgSerTyrSerPheGlnLysValGlyLysL	811 2680
81	1 ysprogluLeuThrLeuValTrpGluProAspAspLeuGluGluGluUPro ::    :::	827 2730
82 273	8 ThrGlnGlnValileThrIlePheSerLeuValAspValValLeuGlnAl 	844
84	4 aGluAlaThrAlaLeuLysTyrSerAlaIleLeu	855

FSCVWEVDNEANVLSKRFHKSVIKSKRAMTYEEAQNIIDDATQQNEIAKSLRNLNRLA

21

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sequence clones from Drosophila Gene Collection I (Rubin et al., Science 2000). The sequence has been subjected to integrity checks for sequence accuracy, presence of a polyh tail and contiguity within 100 kb in the genome. Thus we believe the sequence to reflect accurately this particular colons clone. However, there are artifacts associated with the generation of cDNA clone. However, there are priming, priming from contaminating genomic DNA, retained introns due to reverse transcription of unspliced precursor RNAs, and reverse transcription of unspliced precursor RNAs, and reverse transcription of unspliced precursor RNAs, and and relationship to other sequences, please visit our Web site (http://fruitfly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partifly.partif
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Stableton, M. Brokstein, P., Hong, L., Agbayani, A., Carlson, J., Champe, M., Chavez, C., Dorsett, V., Farfan, D., Frise, E., George, R., Gonzalez, M., Guarin, H., Li, P., Liao, G., Miranda, A., Mungall, C.J., Nunco, J., Pacleb, J., Paragas, V., Park, S., Phouanenavong, S., Wan, K., Yu, C., Lewis, S.E., Rubin, G.M. and Celniker, S. Dhoanenavong, S., Wan, K., Submitted (10-AuG-2001) Berkeley Drosophila Genome Project, Lawrence Berkeley, GA, 94720, USA
                                                                                                                                                                                                                                                                                                                                    INV 27-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This clone was sequenced as part of a high-throughput process to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="alignment with genomic scaffold AE003747"
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72. .3020
                                                                                                                                                                                                                                                                                                                                    linear
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.. LysargProGlyLeuGluLysalaSerAspGluGluProGluAsp 870
                                                                                                                                                                                                                                                                                                                               AY052150 3129 bp mRNA linear
Drosophila melanogaster SD10981 full length cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Drosophila melanogaster"
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Sequence submitted by:
Berkeley brosophila Genome Project
Lawrence Berkeley National Laboratory
Berkeley, CA 94720
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Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="Dis3"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fruit fly.
Drosophila melanogaster
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                                                                                                                                                                                                                                                                                      seq_documentation_block:
LOCUS AY052150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLI_CDNA
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SOURCE
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COMMENT

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LLAASIGADSTYAQLLDRKSNEELCHNINYRHKMAQYAGRASVALNTHLFFRGKEEDE
EGYYLFVRKNALQVLIPKYGLEGTLYIKSDKDGKDGVERVKSEIVFTFNEEDHTQRCG
DVVFHSFDPVTVRLSLDSSNVQHEKLIFRLVKPYIKGFSVETTTEGTDSQAVSAAPPS
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EHIATEFSECAVLRRHPRPPPTNFDPLVKSARYQGFQVDINSGLELSHSLDKCVKADN
                                                           PYFNTMIRILTTRCMMQAVYFISGSLQKEEFFHYGLAAPIYTHFTSPIRRYSDIMVHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1037
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1038 ............AGCGAGGAAAGGGCCAAGGATG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1060 AAAATGAGATGTTGAATCAGGTGCGTGCCGCTGCCTTATCCGCA..... 1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1104 ......GAGCGCACGCC 1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  198 ArgGlyLysGluAspSerSerThrProValMetLysAspGluAsnThrPr 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131 ysGluIleGluAlaThrTyrGluAlaAspIleProGluGluGlyCysGly 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    164 elleGluAlaGlnPheAspAspSerAspSerGluAspArgHisGlyAsnT 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 hrSerGlyLeuValAspGlyValLysLysLeuSerIleSerThrProAsp 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                214 olleProGlnAspThrArgGlyLeuSerGluLysSerLeuGlnLysSerA 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           709 TGATGGATAAGCTGTCGCACAAACATTCGACAGCGAGAAGAATGGTCTG 758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          909 GGACGCGAGTCTCTTAATCGGGCCGTGGATGGCGACCTGGTGGCCGTGGA 958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  114 sLeuLeuProGluAspGlnTrpLysAlaValLysProGluSerAsnAspL 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          859 IGGAGGGCACCGICAAIGIAGAGAAAIICGAAAAGGGGGAICCIIAICCAA 908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98 GlyValValAlaArgAsnArgAlaLeuAsnGlyAspLeuValValValLy 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   50 .....PheGluThrTyrMetSerLysGluAspValSerGluGlyLeuLy 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      309 CCAAAATAAGCTACTACAGGGCACTTTTCAGGCATCCAGGGAAACTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17 ArgGlyValSerSerValValGlyProSerAlaValGlyAlaSerProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          671 CGCGGGGTACGTGAAATC.....TCTCGAGGATTTTCCACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      33 yAsp.LysLysSerLysAsnLysSerMetArgGlyLysLysLysSerIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           759 CCCCAGTACCCGCCGCATCTCAGCATGAAGGAGCTGCTGGAAGGACTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64 sArgGlyThrLeuIleGlnGlyValLeuArgIleAsnProLysLysPheH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81 isGluAlaPheIleProSerProAspGlyAspArgAspIlePheIleAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1003 TGGAGGAGAATGTCTATGCCGATGAAGTGCCC.......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148 HisHisProLeuGlnGlnSerArgLysGlyTrpSerGlyProAspValll
                                                                                                                                                                                                                                                                                                                                                    Length: 864
Gaps: 24
Percent Identity: 31.019
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1.912
60.417
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US-09-647-377-9 x AY052150
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Quality:
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231	laLysValValTyrIleLeuGluLysLysHisSerArgAlaAlaThrGly ::::::::	247 1166
248 1167	11eLeulysLeuleualaasplysasnSeraspleuPhelysly        :::	262 1205
262 1206	sTyralaLeuPheSerProSerAspHisArgValProArg1leTy :::       :::   ATCTTGTGCCGCCGACGTAAGATTCCGCGCATCG	279 1248
279 1249	roLeuLysAspCysProGlnAspPheMetThrArgProLysAspPheAla ::::::::::::::::::::::::::::::::::::	295 1274
296 1275	ASDINTLEUPHEIJECYSAIGIJEIJEASP     :::     AACCAGCGATCGTAACGAITGACACA	312 1324
312 1325	eAlaLeuGlyGlnLeuAlaLysSerLeuGlyGlnAlaGlyGluTleGluP:	329 1374
329 1375	roGluThrGluGlyIleLeuThrGluTyrGlyValAspPheSerAspPhe    :::              :::      CGAGAACGAGGTTATCCTGCTGGAGGACGACGTCCCGCACTGCAGTTC	345 1424
346 1425	SerSerGluValLeuGluCysLeuProGlnSerLeuProTrpThrIlePr     :::          ::  TCGGACGAAGGCTTAGCTTCTTGCCGAAAATGCCCTGGACAATTAC	362 1471
362 1472	OProAspGluValGlyLysArgArgAspLeuArgLysAspCysIlePheT ::::: :::                  :	379 1521
379 1522	hrileAspProSerThrAlaArgAspLeuAspAspAlaLeuAlaCysArg ::::	395 1571
396 1572	ArgLeuThrAspGlyThrPheGluValGlyValHissleAlaAspValSe:::    :::   ::::	412 1621
412 1622	rTyrPheValProGluGlySerSerLeuAspLysValAlaalaGluArgA  :::   :::     ::::	<b>4</b> 29 1671
429 1672	laThrSerValTyrLeuValGlnLysValValProMetLeuProArgLeu::   :::	445 1721
446	LeuCysGluGluLeuCysSerLeuAsnProMetThrAspLysLeuThrPh     ::::::	462 1771
462	eSerVallleTrpLysLeuThrProGluGlyLysIleLeuGluGluTrpP	479 1821
479	heGlyArgThrIleIleArgSerCysThrLysLeuSerTyrAspHisAla    :::::::   ::::    TCCACAAGAGGTCATCAAATGGAAGCGTGCCATGACCTACGAGGAAGCG	495 1871
496	GinserMetileGluasnProThrGluLysIleProGluGluGluLeuPr    :::::   :::::     :::::     :::::     :::::     ::::::     ::::::	512 1901
512 1902	OProlleSerProGluHisSerValGluGluValHisGlnAlaValLeuA	529 1926

~	ATCTTAATCGGTTGGCCAAAATACTGAAAAAGCGACGATGGATAAT	6
546 1977	AlaLeuArgLeuAspGlnLeuLysLeuAlaPheThrLeuAspHisGluTh             :::::      :::            GCCCTTGTCCTTGCCTCCCGGAGATCCGCTTCCAGGTGGACAGCGAGAC	562 2026
562	rGlyLeuProGlnGlyCysHisIleTyrGluT 	579 2076
579	euValGluGluPheMetLeuLeuAlaAsnMetAlaValAlaHisLysIle ::	595 2126
596	PheArgThrPheProGluGlnAlaLeuLeuArgArgHisProProProGl 	612 2176
612	nThrLysMetLeuSerAspLeuValGluPheCysAsp ::::::       ::: :: GCCTACCAATTTCGATCCGCTGGTAAAGTCTGCGCGC	629 2226
629	roMetaspValSerSeralaGlyAlaLe :::   :::     AGGTGGACATCAGTTGGGACTGGAGCT	645 2276
646 2277	llyaspasplystyrSerLeualaarglysGluValLeuThra  ::    :::      ::GGGATAATCCGTACTTTAACACAATGATCGGCATCCTCACC.	661 2324
661 2325	<pre>ArgProMetGlnMetalai   </pre>	678 2367
678 2368	pglngluglnpheargHisTyralaLeuasn:::   :::    	694 2414
695 2415	Arg	711 2464
711	AlaAlaLeuGly     ::::::    :GCCTCAATCGGCGGGAT	724 2514
724	LysGlnalaAspHisCys ::::::: :TCAAATGAGGAGCTGTGT	740 2549
741	erLysArgValGln	750
750	LeuPhePheAlaValLeuValLysGluSerGlyPro           :TCTTTTCGGCGGCAAGGAGGAG	767 2634
767 2635	.ValMetGlyValLeuAsnGlnAlaPheAspVa    :::   ::::     GGCTATTGTGCGCAAGAATGCTCTGCAAGT	783 2684
784	<pre>ArgPheGlyValGlnLysArgIleTyrC :::::   : AAGTATGGCCTGGAAGGCACTTTGTAT.</pre>	800 2719
800	SerPheGlnLysValGlyLys :::            GACAAGGATGGCAAGGACGTGTGG	811 2760
811	LeuThr	827

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277 yrValProLeuLysAspCysProGlnAspPheMetThrArgProLysAsp 293
                                                                                                                                                                   alignment_scores:
                                                     BASE COUNT
ORIGIN
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VEOROGESVKSLTANPELIDRLACLESEGNEIESGKIIFSEHLFLFKLQVGTKGTVLQ
GTFRASRENYLEATVWHGGNEENKEIILQGLKHLNRAVHEDIVAVELLPKSOWVAPS
SVVLHDEGQNEEDVEKEEERRRMLKTAVSEKMLKPTGRVVGIIKRNWRPYCGMLSKSD
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VGEKETETEVLLLEHDVPHQPFSQAVLSFLPKMPWSITEKDMKNREDLRHLCICSVDP
PGCTDIDDALHCRELENGNLEVGVHIADVSHFIRPGNALDQESARRGTTVYLCEKRID
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IDSANMNDDITTSLRGLNKLAKILKKRRIEKGALTLSSPEVRFHMDSETHDPIDLQTK
ELRETNSWVEEFWLLANISVAKKIHEEFSEHALLKKHPAPPPSNYEILVKAARSRNLE
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IYTHETSPROVINFLLAVAIGAACTYPELDKHKHALALCKNLNFRKMAQYAQ
RASYAFHQLFPRSKGIYSEBXYLLEVRKALVYLLPKYGLEGTYPFEEROKPNPOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (04-FEB-1999) Osamu Ohara, Kazusa DNA Research Institute, Laboratory of DNA Technology; Yana 1532-3, Kisarazu, Chiba 292-0812, Japan (E-mail:cdnainfo@kazusa.or.jp, Tel:+81-438-52-3913, Fax:+81-438-52-3914)
                                                                                                                                                                                                                                                                                                                                                                                        PRI 16-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens adult male brain cDNA to mRNA, clone_lib:pBluescriptII
SK plus clone:hh04776.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="KIAA1008"
/note="h04476 cDNA clone for KIAA1008 has a 1-bp deletion
at position 1122 of the sequence of KIAA1008."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia; Eutheria; Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             l (sites)
Nagase,T., Ishikawa,K., Suyama,M., Kikuno,R., Hirosawa,M.,
Nagases,T., Tanaka,A., Kotani,H., Nomura,N. and Ohara,O.
Prediction of the coding sequences of unidentified human genes.
XIII. The complete sequences of 100 new cDNA clones from brain which code for large proteins in vitro
DNA Res. 6 (1), 63-70 (1999)
                                                                                                                                                                                                                                                                                                                                                                      ABUJ3225 5231 bp mRNA linear P
Homo saplens mRNA for KIAA1008 protein, complete cds.
AB023225
2811 GGTGACGTGGTGTTCCACTCCTTTGATCCAGTCACGGTTCGTCTTAGCCT 2860
                                                                                  828 ThrGlnGlnValIleThrIlePheSerLeuValAspValValLeuGlnAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           plus"
                                                                                                                                                                                                                                                2861 GGATTCCAGCAATGTGCAGCACGAGAAGCTGATCTTCCGG 2900
                                                                                                                                                                                       844 aGluAlaThrAlaLeuLysTyrSerAlaIleLeuLysArg 857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /tissue_type="brain"
/clone_lib="pBluescriptII SK
/dev_stage="adult"
94. .2880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="KIAA1008 protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="BAA76852.1"
/db_xref="GI:4589660"
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/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="hh04776"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ohara, O., Nagase, T. and Kikuno, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="KIAA1008"
94, .2880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AB023225.1 GI:4589659
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .2880
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SK plus clone
Homo sapiens
                                                                                                                                                                                                                                                                                                                                                          seq_documentation_block:
                                                                                                                                                                                                                                                                                                     seq_name: gb_pr:AB023225
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VERSION
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FEATURES

TITLE

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YDDEIPSLKIEDTVFHVFDKVKVKIMLDSSNLQHQKIRMSLVEPQIPGISIPTDTSNM
DLNGPKKKKKKKK"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      958 ......GATGTGGAGAAGAAGAAGAAGAAGAAGAACGAATGCTTAAG. 996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   194 SerThrProAspArgGlyLysGluAspSerSerThrProValMetLysAs 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                210 pGluAsnThrProIleProGlnAspThrArgGlyLeuSerGluLysSerL 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       244 AlaAlaThrGlyIleLeuLysLeuLeuAlaAspLysAsnSerAspLeuPh 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94 IlePheIleAspGlyValValAlaArgAsnArgAlaLeuAsnGlyAspLe 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATAATCTTACAGGGACTTAAACATTTAAACAGAGCTGTTCACGAAGATAT 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 127 luSerAsnAspLysGluIleGluAlaThrTyrGluAlaAspIleProGlu 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          160 yProAspValIleIleGluAlaGlnPheAspAspSerAspSerGluAspA 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         177 rgHisGlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIle 193
                                                                                                                                                                                                                                                                                                                                                                                                                        110 uValValValLysLeuLeuProGluAspGlnTrpLysAlaValLysProG 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              144 GluGlyCysGlyHisHisProLeuGlnGlnSerArgLysGlyTrpSerGl 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |||:::|||
|1066 CCATATIGIGGCATGCTTTCCAAGTCTGACATTAAGGAGTCA......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |||:::::::|||:::
925 ......GTGGTTTTACAT.......GATGAAGGTCAAAATGAAGAA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          227 euGlnLysSerAlaLysValValTyrIleLeuGluLysLysHisSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      260 eLysLysTyrAlaLeuPheSerProSerAspHisArgValProArgIleT
                                                                                                                                                                                                                                                                                                                                                                                          47 LysSerIlePheGluThrTyrMetSerLysGluAspValSerGluGlyLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80 heHisGluAlaPheIle......ProSerProAspGlyAspArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63 uLysArgGlyThrLeuIleGlnGlyValLeuArgIleAsnProLysLysP
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54 GCATAGAACCAGACAG	94 PheAlaAsnThrLeuPheIleCysArgIleIleAspTr 	06 pLysGluAspCysAsnPheAlaLeuGlyGlnLeuAlaLysSerLeuGlyG	23 lnAlaGlyGluIleGluProGluThrGluGlyIleLeuThrGluTyrGly :::::	40 ValAspPheSerAspPheSerGiuValLeuGluCysLeuProGlnSe	56 rLeuproTrpThrIleProProAspGluValGlyLySArgArgAspLeuA :::      :::    66 ATGCCTGGAGCATTACTGAAAAGGACATGAAAACGAGAAGACCTGA	73 rgLysaspCysIlePhcThrIleAspProSerThrAlaArgAspLeuAsp 	90 AspAlaLeuAlacysArgArgLeuThrAspGlyThrPheGluValGlyVa 	406 lhisilealaaspValSerTyrPheValProGluGlySerSerLeuAspL 	423 ysValAlaAlaGluArgAlaThrSerValTyrLeuValGlnLysValVal ::::!  :::   :::    ::: 565 AAGAATGAGCGAGAAGAGGAACAACTGTGTATATTGTGAAAAGAGGATT	40 ProMetLeuProArgLeuLeuCysGluGluLeuCysSerLeuAsnProMe     :::    :::         15 GACATGGTTCCAGAGTTGCTTAACTTGTGTTCCTTAAAATGTGA	456 tThraspLysLeuThrPheSerVallleTrpLysLeuThrProGluGlyL :::   :::    :::	73 ysileleuGluGluTrpPheGlyArgThrIlelleArgSerCysThrLys:::    :::    ::::::    ::::::    ::::::	90 LeuSerTyraspHisAlaGlnSerMetIleGluasnProThrGluLysIl    :::   ::: ::: ::: ::: ::: :::   CTGACATATGCTGAAGTTGAGAATTGATTCAGGAACATGAAT	luGluGluLeuProProIleSerProGluHisSerV	alHisGlnAlaValLeuAsnLeuHisSerIleAlaLygGlnLe::::::::::::::::::::::::::::::::::::	40 GlnArgPheValAspGlyAlaLeuArgLeuAspGlnLeuLySLeuAlaPh :::   :::	56 eThrLeuAspHisGluThrGlyLeuProGlnGlyCysHisIleTyrGluT   :::	73 yrargaspSerasnLysLeuValGluGluDheMetLeuLeualaasnMet
11	2 11	3	3	3	3	3	3	15	15	44	4	4	4	18	6 2	54	19.	'n

1970	TTAGGGAAACAAATTCCATGGTTGAAGAATTTATGTTACTTGCCAATATT	2019
590	AlaValAlaHisLysIlePheArgThrPheProGluGlnAlaLeuLeuAr :::	606
909	gårgHisProProProGlnThrLysMetLeuSerAspLeuValGluPheC	623
2070	AAAACATCCTGCTCCATCCATCAAATTATGAAATTCTTGTTAAGGCAG	2119
623 2120	ysAspGlnMetGlyLeuProMetAspValSerSerAlaGlyAlaLeuAsn :::::::::::    :::     CCAGGTCAAGAATTTGGAAATTAAGACTGATACAGCCAAGTCTTTGGCT	639 2169
64	LysserLeuThrLysThrPheGlyAspAspLysTyrSe	52
- 1	GAGICIIIGGAICAGGCCGAAICTCCTACTTTTCCA	Ñ
5206	<pre>rLeuAlaArgLysGluValLeuThrAsnMetTyrSerArgProMetGlnM :: :::   </pre>	669 2251
669	etalaLeuTyrPheCysSerGlyMetLeuGlnAspGlnGluGlnPheArg::   :::	685
99	HisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSerProIleAr	702
2293	CACTATGGCTTAGCGTCTCCAATATACACACATTTACTTCACCCATTAG	2342
702	GARGPheAlaAspValIleValHisArgLeuLeuAlaAlaAlaLeuGly.	718
719	spThrLeuGln	731
2393	ACTTATCCAGAGTTGACAGACAAACAC	2427
732	PArgargmetalaSerLy    :::  CGGCACAAAATGGCTCA	745
745	ე ≰	762
762	luSerGlyProLeuGluSerGlualaMetValMetGlyValLeuAsnGln 7	778
779	λ <sub>2</sub> :	95
795	enAlaLeuArgSerTyrSerPheGlnLysValGlyLysL	811
2626	<b>&amp;</b>	2647
811	hrLeuValTrpGluProAspAspLeuGluGluBro	827
828	ThrGlnGlnValIleThrIlePheSerLeuValAspValValLeuGlnAl 8           ::: :::    ::                ACAGTGTTCCATGTATTGATAAAGTGAAAATGAAATG	844
844	aGlualaThralaLeuLySTyrSeralaIleLeu	155
856	LysArgProGlyLeuGluLysAlaSerAspGluGluProGluAsp 870	
2792	CACAGATACCAGGAATAAGCATTCCTACTGATACTTCAAACATGGAC 2838	

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eg_documentation_block: OCUS AC017755 131853 bp DNA linear HTG 09-DEC-1999 BEINITION Drosophila melanogaster, *** SEQUENCING IN PROGRESS ***, in ordered	178 HisGlyAsnTh: ::::::::   94748 GAGTCCGATACO
NOI N SC	194 rThrProAspA 94772
SM	211 luAsnThrPro ::        94785 ACAACTGCCCT
Muscomorpha; Ephydroidea; Drosophilidae; Dro 1 (bases 1 to 131853) Adams, M. and Venter, J.C. Direct Submission	228 GlnLysSeral:   :::     94796AaAGC
JOURNAL Submitted (09-1999) Celera Genomics, 45 West Gude Drive, Rockville, MD, USA.  ROCKVILLE, MD, USA.  This sequence was identified as CDM:10211975 by the submitter.  For more information on this record e-mail to flyecelera.com.	244 aAlaThrGlyI :::    94840 GATCGTGGAA
* NOTE: T * This se * by the * the acc	255 ysAsnSerAsp :: 94890 AG
Location/Qu 1. 131853 /organism=" /db_xref="t	272 ArgValProAr           94922 CGTGTCCCCAT
	288 tThrargProL :::::: : 94972 AAACAAGCAGG
<pre>Lignment_scores:     Quality: 972.50</pre>	304 leAspTrpLys :::: 95022 TCGAG
lignment_block: US-09-647-377-9 x AC017755	320 SerLeuGlyGl :::   ::
Align seg 1/1 to: AC017755 from: 1 to: 131853	
66 GlythrLeuileGlnGlyValLeuArgileAsnProLysLysPheHisGl 82     :::::::: :::   :::       ::: ::::: 94402 GGGCGCATTGTAGAAGAGGAAATCCGGGTTAACCGCAAGAACAGACA 94451	
82 ualaPheileProSerProAspGlyAspArgAspilePheileAspGlyV 99 	352 ysLeuProGln 111 95166 TTTACTCCCAG
alValAlaArgAsnArgAlaLeuAsnGlyAspLeuVal ::	369 ArgArgAspLe    :::      95213 CGAAAAGACTT
112 ValValLysLeuLeuProGluAspGlnTrpLysAlaValLysProGl 127 ::::	385 aArgAspLeuA              95263 TCGCGATTTGG
127 uSerAsnAspLysGluileGluAlaThrTyrGluAlaAspIleProGluG 144   ::::::        ::::: 94602 GCCTCGTCTGGTGAAATCTCTGGT	402 heGluValGly ::   :::    95313 ATGAGATTGGC
luGlyCysGlyHisHisProLeuGl. 	419 SerSerLeuAs :::::      95363 AATGAACTGGA
TARGINATE SET THE SET OF THE SET	435 IGINLYSVALV :::::::   : 95413 CAACGAGGTAA
94669 ATAATACTTCGACTGATGATAATATCCTATAAAGCGGATGGTGAGGA 94716 161 OASPVAlIlelleGluAlaGlnPhe.AspAspSerAspSerGluAspArg 177	

94717		94747
178	isGlyAsnThrSerGlyL	194
94748		94771
194	rThrProAspArgGlyLysGluAspSerSerThrProValMetLysAspG	211 94784
211	uAsnThrProlleProGlnAspThrArgGlyLeuSerGluLysSer :      Sangangan	227
22	GlnLysScralaLysValValTyrIleLeuGluLysLysHisSerArgAl :::         :::         :::  AAAGGGGTATAGCAATAACAAACGAACTGAGCTGCGCC	44
244	AlaThrGlyIleLeu :::    ATCGTGGGAACCATATCGTTTA	255 94889
255 94890	ysasnSeraspLeuPheLysLysTyralaLeuPheSerProSeraspHis::	271 94921
272	ArgIleTyrValProLeuLy: :::           ATGGTCTACGTTCCGAAGGA	288 94971
288	TThrargProLysAspPhealaAsnThrLeuPheIleCysArgIleI :::::       :::::    : AAACAAGCAGCAAATAGACGTGTCGGGCCTCTTATACCTTGCCCATATAC	30 <b>4</b> 95021
304	leasptrpLysGluaspCysasnPheAlaLeuGlyGlnLeuAlaLys ::::	319 95065
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336 95116	rGluTyrGlyValAspPheSerAspPheSerSerGluValLeuGluC :::	352 95165
352 95166	ysLeuProGlnSerLeuProTrpThrIleProProAspGluValGlyLys	368 95212
369 95213	ArgArgAspLeuArgLysAspCysIlePheThrIleAspProSerThrAl    :::	385 95262
385 95263	aArgAspLeuAspAspAlaLeuAlaCysArgArgLeuThrAspGlyThrP                   :::::::::::::      ::::::	402 95312
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419 95363	SerSerLeuAspLysValAlaAlaGluArgAlaThrSerValTyrLeuVa ::::::       :::::::       ::: AATGAACTGGATAACATAGTGAAGGAACGCTCTACGTCTATTAATTA	435 95412
435 95413	GlnLysValValProMetLeuProArgLeuLeuCysGluGluLeuCysS :::::::    :::	452 95459
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483	elleArgSerCysThrLysLeuSerTyrAspHisAlaGlnSerMetIleG:    :::        ::::	500	96
500	luksnProThrGluLysIleProGluGluGluLeuProProIleSerPro ::       :::          ACAACCTAATGAACGGTTTACCGAGAACGACTTTCCGACCATCTGAAT	516 95659 .	96
517 95660	GluHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSerIl::::::::::::::::::::::::::::::::::::	533 95709	96
533 95710	eAlaLysGlnLeuargArgGlnArgPheValAspGlyAlaLeuArgLeuA      :::::::    :::   ::: TGCAAGCTCCATCCGTAAGACACGTTTAGACAATGGCGCACTCACAATTA	550 95759	96
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567 95810	GlyCysHisIleTyrGluTyrArgAspSerAsnLysLeuValGluGluPh ::: ::::   :::    :::            TCTTTTGAAGTGGAGAACAGCGAGAGGCTAACCGGCTGATTGAAGAGTT	583 95859	96
583	eMetLeuLeuAlaAsnMetAlaValAlaHisLysIlePheArgThrPheP 	600	96
600	rogluglnalaleuLeuargargHisProProProglnThrLysMetLeu   :::    :::	616 95959	sed_n sed_d LOCUS
617 5960	SeraspieuvalGlubheCysaspGlnMetGlyLeuProMetaspvalSe :::	633	DEFIN ACCES
633	rSerAlaGlyAlaLeuAsnLysSerLeuThrLysThrPheGlyAspAspL      :::       :::::    CTGTCTAAGGGCTCCAGGAGAGCATGGTGGGTTGTGCAATGAGGCG	650 96059	KEYWOI SOURCI ORGA
650	ysTyrSerLeuAlaArgLysGluValLeuThrAsnMetTyrSerArgPro :::    ::    :::    CCAATCCTGTGGCAATGAATGCCTGCCTAAGTCAGCTTTTGATGAACCA	666 96109	REFER
667	MetGlnMetAla	670 96159	
671		682 96209	
682 1	uGlnPheArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrS :::::	699 96259	
699	erprolleargargPhealaAspVallleValHisArg	711 96309	TIT) JOUI REFERI
712		713	AUT
310	96310 ACCTTGGAAGTTCGCCTCCCGTACTTAAAATTTCCTCCACTCTAGACTTT	96359	
713	713 eualaalaalaLeuGlyTyrSerGluGlnProAspValGluProAspThr 	729 96409	

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TITUL 119.

Drosophila melanogaster

Eukaryota: Metazoa: Arthropoda; Tracheata; Hexapoda; Insecta;

Pteryqota: Meoptera: Endopteryqota: Diptera: Brachycera;

Muscomorpha: Ephydroidea; Drosophila.

1 (bases 1 to 168250)

Ruzny, D., Scherer; S., Adams, M.D., Holt, R.A., Evans, C.A.,

Gocayne, J.D., Tabor, P., Williamson, A., Homsi, F.H.,

Dugan Rocha, S.D., Sodergren, E.S., Hodgson, A.H., Chan, R.C.,

Ayele, M.A., Scott, G.S., Worley, K.W., Amamatides, P. G., Brandon, R.C.,

Rogers, Y., An, H., Baldwin, D., Besson, K.Y., Brown, M., Buhay, C.,

Busam, D.A., Center, A., Chen, G., Chen, Z., Clerc-Blankenburg, K.,

Davenport, L.B., Dietz, S.M., Ding, Y., Dodson, K., Doup, L.E.,

Davenport, L.B., Dietz, S.M., Ding, Y., Dodson, K., Doup, L.E.,

Hostin, D., Howland, T.J., Hume, J., Ibeewam, C., Jalali, M., Kovar, C.,

Liu, W., Mattei, B., McIntosh, T.C., Morgan, M., Murphy, B.,

Nalson, K.M., Nadassa, Y., Nauyen, N., Perez, L., Pittman, G.S., Puri, V.,

Kiang, J., Zaveri, J.S., Zhou, J., Zorrilla, S., Smith, H.O.,

Nheeler, D., Weinstock, G., Gibbs, R. and Venter, J.C.,

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Worley, K.C., Adams, C., Adio-Oduola, B., Ali-osman, F.R., Allen, C., Alsbrooks, S.L., Amaratunge, H.C., Are, J.R., Barks, T., Barbaria, J., Benton, J., Blimage, K., Blankenburg, K., Bonnin, D., Bouck, J., Bowle, S., Brieva, M., Brown, E., Brown, M., Bryant, N.P., Buhay, C., Burch, P., Burkett, C., Burrell, K.L., Byrd, N.C., Carron, T.F., Carter, M., Cavazos, S.R., Chackor, Chen, G., Chen, G., Chen, C., Cox, C., Coyle, M.D., Davihorne, S.R., David, R., Davila, M.L., Davis, C.,
                                                          110 TTGCACACCTTAACGAAATTAGCGAATGAGCGCAAGTACAATGCGAAAAA 96459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           :::: ||| ||| :::||||:::||| ||| ::::
                                                                                                                                                                                                                                                                                                                                                        510 AGCAGGCCATATACATGCGAGCTGTGGTCATTGAAATATTTCAGCATATG 96559
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        796 nAlaLeuAlaLeuArgSerTyrSerPheGlnLysVal......G 809
130 LeuGlnLysGlnAlaAspHisCysAsnAspArgArgMetAlaSerLysAr 746
                                                                                                                                             46 gValGlnGluLeuSerIleGlyLeuPhePheAlaValLeuValLysGluS 763
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                                                                                                                                                                                                                                                                                                                                                                                                                                   '80 PheAspValLeuValLeuArgPheGlyValGlnLysArgIleTyrCysAs 796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     809 lyLysLysProGluLeuThrLeuValTrpGluProAspAspLeuGluGlu 825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              326 GluProThrGlnGlnVallleThrIlePheSerLeuValAspValValLe 842
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Day-Carroll,L., Dederich,D.A., Delaney, K.J., Delgado,O.,
Denn,A.L., Ding,Y., Dinh,H.H., Douthwaite,K.J., Draper,H.,
Dugan-Rocha,S., Durbin,K.J., Earnhart,C., Edgar,D., Edwards,C.C.,
Elhal,C., Escottco,M., Falls,T., Ferraquto,D., Flagg,N., Ford,J.,
Foster,P., Frants,P., Gabisia,A., Gao,J., Garcia,A., Garner,T.,
Garza,N., Gill,R., Gorrell,J.H., Guevara,W., Gunaratne,P., Hawes,A.,
Hernandez,J., Hernandez,O., Haris,K., Hart,M., Harlak,P., Hawes,A.,
Hernandez,J., Hernandez,J., Huber,J., Hubylak,S., Hume,J.,
Jackson,L.E., Jacobson,B., Jala,Y., Johnson,R., Jolickson,L.,
Joudah,S., Karlsson,E., Kally,S., Khan,U., King,L., Korvah,J.,
Kovar,C., Kratovic,J., Kureshi,A., Landry,N., Leal,B., Lewis,L.C.,
Lewis,L., Lib,T., Lil,Z., Lichter,B., Lucier,R., Lucier,R., Luna,R.,
Mayson,N., Maheshwari,M., Mapua,P., Martin,R., Martindale,A.,
Mayen,A., Musyen,N., Nguyen,N., Nickelly,T., Mohabbat,R.,
Morgan,M., Morris,S., Moser,M., Neal,D., Newtson,J., Newtson,N.,
Nguyen,A., Nguyen,N., Nguyen,N., Nickerson,E., Parimus,E., Pu.L.L.,
Quilles,M., Nguyen,N., Nguyen,N., Nickerson,E., Parimus,E., Pu.L.L.,
Quilles,M., Okwuonu,G., Oraqunye,N., Oviddo,R., Pace,A., Pauleria,N.,
Sisson,I., Sodergren,E., Sonaike,T., Sparks,A., Stanley,H.,
Tang,H., Tansey,J., Taylor,T., Telfrod,B., Thomas,N.,
Thomas,S., Usman,K., Vasquez,L., Vera,V., Villalon,D., Vinson,R.,
Wallington,S., Williams,G., Williamson,A., Wallington,S., Walliams,G., Walliamson,A., Wallington,S., Walliams,G., Walliamson,A., Nalorey, Wallington,S., Walliams,G., Walliamson,A., Nalorey, V., Walliamson,A., Nalorey, V., Nalorey, V., Nalorey, M.,
Norman,H., Wallington,S., Walliamson,A., Wallington,S., Walliamson,A., Walliamson Delaney, K.R., Delgado, O., Davy-Carroll, L., Dederich, D.A.,

gc-help@bcm.tmc.edu

TITLE JOURNAL

COMMENT

CLONE LENGTH: This sequence does not necessarily represent the entire insert of this clone. Overlapping regions of clones are only sequenced and submitted once, so the sequence for the remainder of the insert may be found in the record for the adjacent clones. Overlapping clones are noted at the beginning and end of the Features listing.

ANNOTATION OF FEATURES: STSs are identified using ePCR (Genome Res. 7:541-550) searches of a local database that includes entries from dbSTS, GDB, and

local mapping efforts.

Repeats are identified using RepeatMasker (A. Smit and P. Green, upublished.) for Human and Mouse sequences.

Genes and Region of sequence similarity are identified by BLAST (Nuc. Acids Res. 25:3389-3402) similarity (expect < le-34) to the BST and CDNA sequences. Genes demonstrate at least two exons flanked by consensus splice sites that maintained sequence continuity across the splice junctions. Sequences that are not identical matches are annotated as similar.

SEQUENCING READ COVERAGE: Sequencing is completed to a minimum standard of double strand coverage with a minimum of 2 clones and 2 reads with no ambiguities or 2 chemistries with a minimum of 2 clones and 3 reads with no ambiguities. If the sequence quality for a region does not meet this standard, it will be indicated in the annotation as Low Coverage.

QUALITY OF INDIVIDUAL BASES: This sequence meets stringent quality standards - estimated error rate less than 1 per 10,000 bases. Reports of lowest quality individual bases and measures of base quality are listed below. Description of the metrics can be found at URL: http://gc.bcm.tmc.edu:8088/quality.info/genbank.annotation.

QUALSTAT-REPORT

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95187 ......GTGATATCGTCGG 95175
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95163 .....aaagcgttcgtcatagcaataactaaacgaactgagctccgcca 95120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95174 ACAACTGCCCT.....95164
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178 HisGlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIleSe 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                194 rThrProAspArgGlyLysGluAspSerSerThrProValMetLysAspG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127 uSerAsnAspLysGluIleGluAlaThrTyrGluAlaAspIleProGluG 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                161 oAspValIleIleGluAlaGlnPhe.AspAspSerAspSerGluAspArg 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         211 luAsnThrProlleProGlnAspThrArgGlyLeuSerGluLysSerLeu 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       255 ysAsnSerAspLeuPheLysLysTyrAlaLeuPheSerProSerAspHis 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112 ValValLysLeuLeu...ProGluAspGlnTrpLysAlaValLysProGl 127
                                                                                                                                                                                                                                                                                                                                                                                                                                              66 GlyThrLeuIleGlnGlyValLeuArgIleAsnProLysLysPheHisGl 82
                                                                                                                                                                                                                                                                                                                                                                                                 to: 168250
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82 uAlaPheIleProSerProAspGlyAspArgAspIlePheIleAspGlyV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99 al......ValAlaArgAsnArgAlaLeuAsnGlyAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95332 ......GGGAAGCCCTCATTATCTTTGGTAAGTTTATCGGCAAACTT
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                                           melanogaster"
                                                                                                                                                                                                                                        Length: 852
Gaps: 27
Percent Identity: 31.455
                                                                                                                                                                                                                                                                                                                                                                                                 Align seg 1/1 to reverse of: AC093121 from: 1
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47670 a 36872 c 37397 g 46311
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/db_xref="taxon:7227"
/chromosome="3L"
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                      US-09-647-377-9 x AC093121/rev
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1.918
59.507
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                          source
                                                                                                                                   COUNT
  FEATURES
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G 95038	e 288 G 94988	I 304 : C 94938	s 319 : G 94894	h 336 T 94844	C 352 A 94794	s 368 : A 94747	1 385   C 94697	P 402 : T 94647	y 418 C 94597	a 435 : 94547	S 452     94500	u 468 : 3 94450	1 483 : F 94400	3 500 3 94350	516 194300	1 533     94250	3 550 3 94200	1 566
 TTCCGACCGTACGATTT	euLysAspCysProGlnAspPheM      AGGATGCCTGTGCCGCCACATCG	AsnThrLeuPhelleCysArglle  :::   :::::::::     GGCCTCTTATACCTTGCCCATATA	.PheAlaLeuGlyGlnLeuAlaLy :::::::::    :: :GCACTGCATCGCTGAACTAATCCA	luProGluThrGluGlylleLeuT :::      :::::        argacgaactTaaggcaattctgr	AspPheSerSerGluValLeuGlu     ::::::  CATTTGAGCAACGATTTATCGAC	PThrIleProProAspGluValGlyLys      :::::::::::::::::::::::::::::::::	lePheThrIleAspProSerThrA 	CysArgArgLeuThrAspGlyThr  ::::::    ATAGAGAAGCTAGGCGACAAC	pValSerTyrPheValProGluGl:           TGTTTCGCACTTCCTGATAGAGGA	luArgAlaThrSerValTyrLeuV;       :::         AACGCTCTACGTCTATTTAGG	ArgLeuLeuCysGluGluLeuCys; :::         cagtctctatGcatGcGatGr	uThrPheSerValIleTrpLysLer ::::           TGCTTTTCCGTCTTCTGGCGGATC	luTrpPheGlyArgThrI. :: AGAAGCCAGAATTTTGCCGCACAGI	TyrAspHisAlaGlnSerMetIle(     :::           TTGAACACGCTCAAAGATCATCG	uGluGluLeuProProIleSerPro  ::::::::     saACGACTTTCCGACCATCTGAAI	InAlaValLeuAsnLeuHisSerI 	PheValAspGlyAlaLeuArgLeuA ::: :::          TRAGACAATGGGGGACTCACAATTA	JASPHisGluThrGlyLeuProGln
:: AGCTATTCTACAAA	ArgValbroArgileTyrValbroLeuLysAspCysProGlnAspPheM            :::           CGTGTCCCCATGGTCTACGTTCCGAAGGATGCCTGTGCCGCCCACATGG	TThrargProLysaspPhealaasnThrLeuPheIleCysargIleI	lekspTrpLysGluAspCysAsnPheAlaLeuGlyGlnLeuAlaLys ::::          ::::::::::	SerLeuGlyGlnAlaGlyGluIleGluProGluThrGluGlyIleLeuTh :::   ::::   ::::	rglutyrglyvalAspPheSerAspPheSerSerGluvalLeuGluC :::    :::    :::    ::: TCATAACGGTCTCCGGGATATAAAGCCATTTGAGCAACGATTATCGACA	ysLeuProGlnSerLeuProTrpThr1leProProAspGluValGlyLys 	ArgArgAspLeuargLysAspCysIlePheThrIleAspProSerThral     :::	aArgaspleuaspaspalaleualacysargargleuthraspolythrp 	heGluValGiyValHisIleAlaAspValSerTyrPheValProGluGly ::    :::	SerSerLeudsplysvaldladladludrghlathrServaltyrLeuva ::::::      ::       :: AATGAACTGGATAACATAGTGAAGGAACGCTCTACGTCTATTTATT	GInLysvalvalProMetLeuProArgLeuLeuCysGluGluLeuCysS::::::	erLeuasnProMetThraspLysLeuThrPheSerVallleTrpLysLeu         ccTGCTCCCTGGGCAAGACAAGTTTGCTTTTTCCGTCTTCTGGGGGATG	ThrProGluGlyLysileLeuGluGluTrpPheGlyArgThrll :::	elleargSerCysThrLysLeuSerTyraspHisAlaGlnSerMetIleG     :::       ::::::::::	luasnprothrGlubysIleProGluGluGluLeuProProIleSerPro  -	GluHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSerIl 	ealaLysGlnLeuArgArgGlnArgPheValAspGlyAlaLeuArgLeuA      :::::::    :::    :::  TGCAAGCTCCATCCGTAAGACACTTTAGACAATGGGGGCACTCACAATA	spGlnLeuLysLeuAlaPheThrLeuAspHisGluThrGlyLeuProGln
92069	272	288	304	320	336	352 94793	369 3	385 8	402 ]	419 9	435	452 6	469 7	483 6	500 ]	517 G	533 e       94249 T	550 8

94199	ACAATGCCAAGCTACGCTTCCTGCTCGATCCAATTACTGGCGAGCCGTTG	94150
567 94149	GlyCysHisIleTyrGluTyrArgAspSerAsnLysLeuValGluGluPh :::	583 94100
583		009
94099		94050
600	roGluGlnAlaLeuLeuArgArgHisProProProGlnThrLysMetLeu   :::     :::	616 94000
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66666	:::	93950
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	:	2
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93323	ACGGCGTACCCAATTACATTCTTATTGCCGAGCGCAACTTAAAGCAG	93277

VERSION SOURCE

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Unpublished
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Roley, K.C., Adams, C., Adio-Oduola, B., Ali-osman, F.R., Allen, C.,
Alexacoks, S.L., Amaratunge, H.C., Are, J.R., Banks, T.,
Barbaria, J.,
Benton, J., Bimage, K., Blankenburg, K., Bonnin, D., Bouck, J.,
Bowie, S., Brieva, M., Brown, E., Brown, M., Bryant, N.P., Buhay, C.,
Burch, P., Burkett, C., Burrell, K.L., Byrd, N.C., Carron, T. F.,
Carter, M., Cavazos, S.R., Chacko, J., Chavez, D., Chen, G., Chen, R.,
Carter, M., Cavazos, S.R., David, R., Davila, M.L., Davis, C.,
Coyle, M.D., Dathorne, S.R., David, R., Delado, C.D., Cox, C.,
Coyle, M.D., Dathorne, S.R., David, R., Delado, C.,
Denn, A.L., Ding, Y., Dinh, H.H., Douthwaite, K.J., Draper, H.,
Dugan-Rocha, S., Durbin, K.J., Earnhart, C., Edgar, D., Flagd, N., Ford, J.,
Foster, P., Frantz, P., Gabisi, A., Gao, J., Garcia, A., Garner, T.,
Garza, N., Gill, R., Gorrell, J.H., Guevara, W., Gunaratne, P., Hale, S.,
Hamilton, K., Harris, C., Harris, K., Hart, M., Havlak, P., Hane, J.,
Jackson, L.E., Jacobson, B., Jia, Y., Johnson, R., Jolivet, S.,
Joudah, S., Karlsson, E., Kelly, S., Khan, U., King, L., Korvah, J.,
Lulis, B., Homsi, F., Howard, S., Huber, J., Hulyk, S., Hune, J.,
Ludie, R., Li, J., Li, Z., Lichtarge, O., Lieu, C., Liu, J., Liu, W.,
Loulsegd, H., Lozado, R., Kally, S., Khan, U., Kartindale, A.,
Martinez, E., Massey, E., Mawhiney, E., Martin, R., Martindez, R., Manker, M., Morris, S., Moser, M., Morris, S., Moser, M., Nouyen, M., Morris, S., Mose, M., Morris, D., Martin, M., Morris, S., Mose, M., Morris, D., Martin, M., Morris, S., Mose, M., Morris, D., Martin, M., Morris, S., Mose, M., Morris, D., M., Morris, D., M., Morris, D., Martin, M., Morris, D., Martin, M., Morris, M., Martin, M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metalougasa; Arthropoda; Tracheata; Hexapoda; Insecta; Eukaryota; Metalougasa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Mooglera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

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826 GluProThrGlnGlnVallleThrIlePheSerLeuValAspValValLe 842
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Morphished

Morphi
Tang, I., Tansey, J., Taylor, P., Tamerisa, A., Tamerisa, K., Tang, H., Tansey, J., Taylor, C., Taylor, T., Telfrod, B., Thomas, N., Thomas, S., Usmani, K., Vasquez, L., Vera, V., Villalon, D., Vinson, R., Wall, R., Wang, S., Ward-Moore, S., Warren, R., Washington, C., Williams, G., Williams, O., Williams, G., Williamson, A., Wleczyk, R., Wooden, S., Weinstock, G. and Gibbs, R.
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Submitted (31-AUG-2001) Human Genome Sequencing Center, Department of Molecular and Human Genetics, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA (bases 1 to 173494).

BCM-HGSC

Direct Submission Submitted (11-JAN-2002) Human Genome Sequencing Center, Department of Molecular and Human Genetics, Baylor College of Medicine, One Baylor Plaza, Houston, TX 7730, USA On Jan 11, 2002 this sequence version replaced gi:15383769. INFORMATION: http://www.hgsc.bcm.tmc.edu/ or email gc-help@bcm.tmc.edu CLONE LENGTH: This sequence does not necessarily represent the entire insert of this clone. Overlapping regions of clones are only sequenced and submitted once, so the sequence for the remainder of the insert may be found in the record for the adjacent clones. Overlapping clones are noted at the beginning and end of the

## ANNOTATION OF FEATURES:

STSs are identified using ePCR (Genome Res. 7:541-550) searches of a local database that includes entries from dbSTS, GDB, and

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161 oAspValIleIleGluAlaGlnPhe.AspAspSerAspSerGluAspArg 177
                                                                                   21944
                                                                                                                                                                                                                                                                                             21889
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                                                                                                                                                                                                                                                           SEQUENCING READ COVERAGE: Sequencing is completed to a minimum standard of double strand coverage with a minimum of 2 clones and 2 reads with no ambiguities or 2 chemistries with a minimum of 2 clones and 3 reads with no ambiguities. If the sequence quality for a region does not meet this standard, it will be indicated in the annotation as Low Coverage.
                                                                                                                                                                                                                                                                                                                                                                                                                       QUALITY OF INDIVIDUAL BASES: This sequence meets stringent quality standards - estimated error rate less than 1 per 10,000 bases. Reports of lowest quality individual bases and measures of base quality are listed below. Description of the metrics can be found at URL: http://gc.bcm.tmc.edu:8088/quality.info/genbank.annotation.html.
local mapping efforts.

Repeats are identified using RepeatWasker (A. Smit and P. Green, unpublished.) For Human and Mouse sequences.

Genes and Region of sequence similarity are identified by BLAST (Nuc. Acids Res. 25:3389-3402) similarity (expect < 1e-34) to the EST and cDNA sequences. Genes demonstrate at least two exons flanked by consensus splice sites that maintained sequence continuity across the splice junctions. Sequences that are not identical matches are annotated as similar.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22035
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22159 TCGTGCTCTTGCCAGTGGCTAGGCGCTATGCCTTCGATGGTGACAAGTA 22110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .........LysGlyTrpSerGlyPr 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82 uAlaPheIleProSerProAspGlyAspArgAspIlePheIleAspGlyV 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66 GlyThrLeulleGlnGlyValLeuArglleAsnProLysLysPheHisGl 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      al......ValAlaArgAsnArgAlaLeuAsnGlyAspLeuVal
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             112 ValValLysLeuLeu...ProGluAspGlnTrpLysAlaValLysProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       144 luGlyCysGlyHisHisProLeuGlnGlnSerArg........
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Gaps: 27
: Identity: 31.455

    173494
/organism="Drosophila melanogaster"

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /chromosome="3L"
/clone="RP98-48E9"
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.....AAAGCGTTCGTCATAGCAATAACTAAACGAACTGAGCTCCGCCA 21822
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21771 AG.....CTATTCTACAAA.....TTCCGACCGTACGATTTG 21740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21689 AAACAAGCAGCAAATAGACGTGTCCGGCCTCTTATACCTTGCCCATATAC 21640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21595 CCGGTTGGCCGCGTGGGTAATTTGGATGACGAACTTAAGGCAATTCTGTT 21546
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21398 TCGCGATTTGGATGACGCCGTTTCTATAGAGAAGCTAGGCGACAACGAAT 21349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21248 CAACGAGGTAATCCACATGCTGCTCAGTCTTATGCATGCGA...TGTT 21202
228 GlnLysSerAlaLysValValTyrIleLeuGluLysLysHisSerArgAl 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ......LysLeuLeuAlaAspL 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          272 ArgValProArgIleTyrValProLeuLysAspCysProGlnAspPheMe 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    288 tThrArgProLys...AspPheAlaAsnThrLeuPheIleCysArgIleI 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320 SerLeuGlyGlnAlaGlyGluIleGluProGluThrGluGlyIleLeuTh 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  336 rGluTyrGlyVal...AspPheSerAspPheSerSerGluValLeuGluC 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     385 aArgAspLeuAspAspAlaLeuAlaCysArgArgLeuThrAspGlyThrP 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          304 leAspTrpLysGluAspCysAsn...PheAlaLeuGlyGlnLeuAlaLys
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                                                                     178 HisGlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIleSe
                                                                                                                                                                                                               194 rThrProAspArgGlyLysGluAspSerSerThrProValMetLysAspG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               255 ysAsnSerAspLeuPheLysLysTyrAlaLeuPheSerProSerAspHis
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 244 aAlaThrGlyIleLeu.....
                                                                                                                                              21913 GAGTCCGATACCGACAACGTGGTC.
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20301		20252
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763	erGlyProLeuGluSerGlualaMetValMetGlyValLeuasnGlnAla :: ::: ::: ::: ::: ::: ::: ::: AGCAGGGCATATACATGCGAGCTGTGGTCATTGAAATATTTCAGCATATG	779
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Entaryota Musiculus
Entaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Entaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Entaryota: Musiculus Murinae; Musiculus Musiculus; Musiculus Musiculus; Patent: Wombs (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP ANDREAS (DE); HESS JOCHEN (DE); MIRTH THOMAS (DE
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AX015902 Sequence

AX015907 Sequence

AX015907 Sequence

AX015908 Sequence

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AX015910 Sequence

AX015910 Sequence

AX015910 Sequence

AX015910 Sequence

AX015910 Sequence

AX015914 Sequence

AX015914 Sequence

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AC105401 Sequence

AC012033 Homo sapi

AC105915 Sequence

AC012033 Homo sapi

AC105915 Sequence

AC015912 Sequence

AC015912 Sequence

AC015912 Sequence

AX015912 Sequence

AX015912 Sequence

AX015914 Homo sapi

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AX082887 Sequence

AX047560 Drosophil

BC017491 Homo sapi
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A93378 Sequence 17
AX015905 Sequence
AX015899 Sequence
AX015903 Sequence
AX015909 Sequence
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Nucleic acid molecules which code proteins influencing bone development wo 9950284-A 1 07-0CT-1999,
AIGNER THOMAS (DE): HESS JOCHEN (DE): ROSENTHAL ANDRE (DE): Incation/Qualifiers

1. 1550

/organism="Mus musculus"
/db_aref="taxon:10090"
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              ctaccaggogacccactgcccttccctgcccaggaaatggggggtttcagcaaatcagtg
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Eukaryota; Metazoa; C
Mammalia; Eutheria; R
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/organism="Mus musculus"
/db_xref="taxon:10090"
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Matches 473; Conservative
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Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi,

Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 36901)

Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.

Nucleic acid molecules which code proteins influencing bone
development
                                  2428
                                                                2488
                                                                                          Patent: WO 9950284-A 6 07-OCT-1999;
AIGNER THOWAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOWAS (DE)
1. .36901
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Sequence 6 from Patent W09950284.
AX015903
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus
1 (bases 1 to 38886)
Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.
Nucleic acid molecules which code proteins influencing bone
                                                 18379
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development
Patent: WO 9950284-A 12 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
Location/Qualifiers
1. .38886
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15.3%; Score 473; DB 6; Le
ilarity 100.0%; Pred. No. 1.4e-252;
Conservative 0; Mismatches 0;
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100.0%; Pred. No. 1.4e-252;
ive 0; Mismatches 0;
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Sequence 12 from Patent W09950284.
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/db_xref="taxon:10090"
1 9920 c 9356 g 9523
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Mus musculus Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostoml; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus (Dassa 1 to 4999) Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T. Nucleic acid molecules which code proteins influencing bone
                                                209761 TIAGGGGTCAGGGCAGGGGATGCTGAGGCCTGGCCTGTGCTTCCCTGAGCAGAGGATC 209820
209521 AAGTACAGTGCTATCCTGAAGCGACCAGGCCTGGAAGGCGTCTGATGAGGAGCCTGAG 209580
                                                                                                               209641 GGACCTITIGACACCAAAGGGGATITITAAFITIGGTITITAACAACTCAGGGGTTGTIT 209700
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Patent: WO 9950284-A 5 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WITH THOMAS (DE)
LOCATION/Qualifiers
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                                  gactgaatgctagcccaagccaggcctgtgcctgcctaccctgctggcttttaggaata
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a 11814 c 10825 g 14150
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Sequence 5 from Patent WO9950284
AX015902
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Rump, A., Hess, J., Galgoczy, P., Wirth, T. and Rosenthal, A. Genomic sequence from mouse chr. 1
Unpublished
2 (bases 1 to 228283)
Rump, A., Hess, J., Galgoczy, P., Wirth, T. and Rosenthal, A. Direct Submission
Submitted (12-Cort-2000) Genome Analysis, Institute of Molecular Biotechnology, Beutenbergstrasse 11, Jena 07745, Germany
Location/Qualifiers
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                                                                                       aagtacagtgctatcctgaagcgaccaggcctggagaaggcgtctgatgaggagcctgag
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ilarity 100.0%; Pred. No. 1.3e-252;
Conservative 0; Mismatches 0;
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/db_xref="taxon:10090"
/chromosome="1"
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PAT 07-SEP-2000

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2 (bases 1 to 153701)
Worley, K.C.
Direct Submission
Submitted (23-OCT-2001) Human Genome Sequencing Center, Department
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Métazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                    Db 30110 GGCACCTTCGAAGTGGGCGTCCACATCGCCCGATGTGAGTTACTTTGTTCTTGTGAGGGATCC 30169
                                                                                                              1322 ggcaccttcgaagtgggcgtccacatcgccgatgtgagttactttgttcctgagggatcc 1381
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             Score 116; DB 6;
Pred. No. 1.1e-52;
3.7%; SCor.
100.0%; Pred. No. 1..
... 0; Mismatches
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HTG; HTGS_PHASE1.
                Query Match 3.7
Best Local Similarity 100.
Matches 116; Conservative
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Rattus norvegicus
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Algner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T. Nucleic acid molecules which code proteins influencing bone
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Eukaryota, Matazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
1 (bases 1 to 49999)
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Patent: WO 9950284-A 11 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
Location/Qualifiers
1. 49999
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AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db 10503 AGATCCTTGAAGAGTGGTTTGGCCGCACTATCATCCGTTCTTGCACCAAACTGAGCTACG 10562
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/db_xref="taxon:10090"
14550 a 10214 c 10719 g 14516 t
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13135 a 11787 c 10868 g 14209 t
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Sequence 11 from Patent W09950284.
AX015908
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Matches 236; Conservative
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NOTE: This is a 'working draft' sequence. It currently consists of 61 contags. The true order of the pleces is not known and their order in this sequence record is arbitrary. Gaps between the contags are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                       Consensus quality: 123669 bases at least 040
Consensus quality: 129396 bases at least 030
Consensus quality: 135066 bases at least 020
Estimated insert size: 124661; sum-of-contigs estimation
Quality coverage: 0x in 020 bases; agarose-fp estimation
Quality coverage: 2.3x in 020 bases; sum-of-contigs estimation
of Molecular and Human Genetics, Baylor College of Medicine, Baylor Plaza, Houston, TX 77030, USA on Dec 20, 2001 this sequence version replaced gi:17064556.
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                                                                                                                                                                                                                                                                                                                                                                                  ACUBELBY 153701 bp DNA linear HTG 20-DEC-2001 Rattus norvegicus clone CH230-145D14, *** SEQUENCING IN PROGRESS ***, 61 unordered pleces.
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                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Murinae;
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Matches 108; Conservative
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COMMENT

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NOTE: Estimated insert size may differ from sequence length (see http://www.hgsc.bcm.tmc.edu/docs/Genbank_draft_data.html). NOTE: This is a "working draft' sequence. It currently consists of 61 contigs. The true order of the pieces is not known and their order in this sequence record is
                                                                                                                                                                                                                                                    Consensus quality: 123669 bases at least Q40
Consensus quality: 129396 bases at least Q30
Consensus quality: 135066 bases at least Q30
Estimated insert size: 124661; sum-of-contigs estimation
Quality coverage: 0x in Q20 bases; agaross-fp estimation
Quality coverage: 2.3x in Q20 bases; sum-of-contigs estimation
                                                                                                                            arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
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Center: Baylor College of Medicine
Center code: BCM
Web site: http://www.hgsc.bcm.tmc.edu/
Contact: hgsc.help@bcm.tmc.edu
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Anderson, S., Barna, N., Bastien, V., Boguslavki, L., Boukhgalter, B.,

Brown, A., Camareta, J., Campopiano, A., Chang, J., Chazaro, B.,

Choepel, Y., Colangelo, M., Collins, S., Collymore, A., Cook, A.,

Choepel, Y., Colangelo, M., Collins, S., Collymore, A., Cook, A.,

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Ferreira, P., FitzHugh, W., Cage, D., Galagan, J., Gardyna, S.,

Ginde, S., Goyette, M., Garaham, L., Grand-Pierre, N.,

Manazares, R., Landers, T., Hulme, W., Illev, I., Johnson, R.,

Jones, C., Kamat, A., Morton, L., Hulme, W., Illev, I., Johnson, R.,

MacCarthy, M., McEwan, P., McKernan, K., McPheeters, K., Meldrim, J.,

MacCarthy, M., McEwan, P., McKernan, K., McPheeters, K., Meldrim, J.,

Morbu, C., Mahlova, T., Mlenga, V., Murphy, T., Naylor, J.,

North, C., Norman, C. H., O'Connor, T., O'Donnell, P., O'Neil, D.,

Oliver, J., Peterson, K., Phunkhang, P., Pierre, N., Pollara, V.,

Raymond, C., Reta, R., Rieback, M., Riles, C., Rogov, W.,

Seaman, S., Severy, P., Spencer, B., Stange-Thomann, N., Stojanovic, N.

Statuss, N., Subrammian, A., Talamas, J., Tesfaye, S., Theodore, J.,

Viel, R., Vo, A., Wilson, B., Wu, X., Wyman, D., Ye, W.J., Young, G.,

Zainoun, J., Zembek, L., Zimmer, A. and Zody, M.

Submitted (23-NOV-2001) Whitehead Institute/MIT Center for Genome

Research, 320 Charles Street, Cambridge, Ma 02141, USA

All repeats were identified using RepeatMasker:

Cherter: Mhitchead Institute/ MIT Center for Genome Research

Center: Mhitchead Institute/ MIT Center for Genome Research

Center: Whitehead Institute/ MIT Center for Genome Research
                                                                                                                                                                                          AC102491 63173 bp DNA linear HTG 23-NOV-2001
Mus musculus clone RP24-529L13, LOW-PASS SEQUENCE SAMPLING.
AC102491
                                                                                                                                                                                                                                                                                                           Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Mushae, Mus
                                          * NOTE: This record contains 81 individual
* sequencing reads that have not been assembled into
* contigs. Kuns of N are used to separate the reads
* and the order in which they appear is completely
* arbitrary. Low-pass sequence sampling is useful for
* identifying clones that may be gene-rich and allows
* overlap relationships among clones to be deduced.
* However, it should not be assumed that this clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Web site: http://www-seq.wi.mit.edu
Contact: sequence_submissions@genome.wi.mit.edu
------ Project Information
                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 63173)
Birren,B., Linton,L., Nusbaum,C. and Lander,E.
Mus musculus, clone RP24-529L13
                                                                                                                   77718 GATGTCAGCTCTGCAGGGGCCCTAAAT 77692
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Center clone name: 529_L_13
                                                                                                   gatgtcagctctgcaggggccctaaat 2041
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HTG; HTGS_PHASE0.
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21925: gap of 200.0.2.
22626: contig of 701 bp in length 22626: contig of 701 bp in length 23391: contig of 665 bp in length 23491: gap of 100 bp 24160: contig of 665 bp in length 2450: gap of 100 bp 2450: contig of 669 bp in length 25505: contig of 690 bp in length 31 25505: gap of 100 bp 31 2543: contig of 630 bp in length 34 2543: contig of 630 bp in length 34 2543: contig of 630 bp in length 34 2548: contig of 705 bp in length 36 2548: contig of 705 bp in length 36 2548: contig of 657 bp in length 37 305: contig of 657 bp in length
will be sequenced to completion. In the event that
the record is updated, the accession number will
be preserved.
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Query Match 1.8%; Score 57; DB 2; Length 63173; Best Local Similarity 100.0%; Pred. No. 1.2e-19; Matches 57; Conservative 0; Mismatches 0; Indels 0; Gaps

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LLCEELCSLNPMSDKLTFSVIWTLTPEGKILDEWFGRTIIRSCTKLSYEHAOSMIESP
/note="unnamed protein product"
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VLRYGYGYRRYCHARALRSHHPQKVGKKPELTLVWRBPEDMEQBPAQQVTTIFSLVEVV
LQABSTALKRYSALLIKRRPGTQGHLGPPREEEESDGEPEDSSTS"

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                                                                                                                                                                                                                                     Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                    development
Patent: WO 9950284-A 3 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
LOCATION/Qualifiers
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Patent: WO 950284-A 13 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIZEH THOMAS (DE)
LOCATION/Qualifiers
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                Db 61533 AGGGTGTATTGAGAATCAACCCAAAGAAGTTTCATGATGAAGCCTTCATTCTTCTCGG 61477
                                                                                                                                                                                                                                                                      1 (bases 1 to 1140)
Aigner,T., Hess,J., Rosenthal,A., Rump,A. and Wirth,T.
Nucleic acid molecules which code proteins influencing bone
333 agggtgtattgagaatcaacccaaagaagtttcatgaagccttcattccttctccgg 389
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Best Local Similarity 100.0%; Pred. No. 4e-15;
Matches 49; Conservative 0; Mismatches 0; Indels
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Sequence 3 from Patent W09950284.
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1 (bases 1 to 1333) Rosenthal, A., Rump, A. and Wirth, T.
Aigner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.
Nucleic acid molecules which code proteins influencing bone
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Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 49999)
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Patent: WO 9950284-A 7 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
                                           Gaps
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Sequence 17 from Patent WO9950284.
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Sequence 7 from Patent W09950284.
AX015904
AX015904.1 GI:10041647
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                                         49; Conservative
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nes 49; Conservative
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AX015910 Sequence
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AX015903 Sequence
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AX015902 Sequence
AX015902 Sequence
AX015902 Sequence
AX015902 Sequence
AX015908 Sequence
AX01500 Sequence
AX01505 Sequence
AX017225 Homo Sapi
AX017225 Homo Sapi
AX017507 Prosophil
AX003747 Drosophil
AX003747 Drosophil
AX007577 Drosophil
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AX015914 Sequence
AC033374 Homo sapi
AC068134 Homo sapi
AX015912 Sequence
AX176897 Drosophil
AX015913 Sequence
AX015913 Sequence
AX015913 Sequence
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 3100)
Algner, T., Hess, J., Rosenthal, A., Rump, A. and Wirth, T.
Nucleic acid molecules which code proteins influencing bone
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AC006169 Drosophil
AC105293 Drosophil
AE003467 Drosophil
AY052150 Drosophil
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BC022089 Homo sapi
AC105461 Homo sapi
U00057 Caenorhabdi
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Rattus no
Drosophil
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AJ308998 Trypanoso
AC019130 Homo sapi
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Patent: WO 9550284-A 8 07-0CT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
Location/Qualifiers
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AC098189
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AC093501
AC006169
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Sequence 8 from Patent WO9950284.
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AB066536
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AC024062
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                                                                             July 8, 2002, 07:57:53 ; Search time 3767.8 Seconds
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Copyright (c) 1993 - 2000 Compugen Ltd.
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Maximum Match 100%
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Sequence 1 from Patent W09950284
AX015899 GI:10041641
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I: WO 9550284-A 13 07-OCT-1999;

RR THOMAS (DE); HESS JOCHEM (DE); ROSENTHAL ANDRE (DE); RUMP

FAS (DE); WIRTH THOMAS (DE)

LOCATION/QUAlifiers

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FSSAGAL YRERLDM KQAFDVL FSLVEVV		65	0	025	2085	2145	53	2205 213	2265 273	325 33	385 93	445 53	505	565	.25 13	.85 13	18
<pre>/2784 /note="unnamed protein product" /codon_start=1 /protein_id="CACO7619.1" /db_xref="GI:10041644" /translation="IHPAFPEQALIRHPPPOTRMLSDLVEFCDOMGLPVDFSSAGAL NMALYFCSGLLODPAGPRHYALNVPLYTHFTSPIRRFADVLVHRLIAAALGYRERLDM APDTLQKQADHCNDRRAASRRVQELSFSTEFRAVLVRESGPLESBEAWYMGILKQAPDVL VLRYGVQRRIYCNALALRSHHFOKVGKKPELFILVWEPEDMESGPPAQQVITIFSLVEVV LQABSTALKXSALIKRPGTGGHLGPEKEEEESDGEPEDSSTS" 355 c 334 g 220 t</pre>	565.6; DB 6; Length 1140; No. 5.8e-136; matches 189; Indels 146; Gap	. ~	GATCCACGCGCCTTCCCCGAGCAGGCCTGCTGCGCCGGCACCCCCCGGCCCCCAACAAG 66	<pre>gatgctcagtgacctggtggagttctgtgaccagatggggctgcccatggatgtcagctc 20                                     </pre>	gtactctctggc	actgtacttctg	THITHINITE TEACHER THE TEACHER THE TEACHER TEA	ctctgggatgctgcaggaccaggagcagttccggcattatgctctcaacgttccctcta 22/ 	cacacacttcacctctccatccgccgctttgctgacgtcatagtgcaccgcctcctggc 22	tgetgetetgggetacagtgaacagecagatgtggageetgataceetacagaageaage 23 	tgaccactgcaatgaccgtcgcatggcttccaaacgtgtgcaggagctcagcatcggcct 23 	cttcttcgcagttctagtaaaggagagtggcccctggagtccgaagccatggtgatggg 24 	tgtcctgaaccaagctttcgacgtgctggtgctgcgctttggggtgcagaagcatcta 25 	ctgcaatgcactggcctgcgatcctacagcttccagaaggtggggaagaagccagagct 25 	cactettgtttgggageetgatgaeettgaagaggagecaacacageaggteateaeat 26 	cttcagcctggtggatgtggtcctgcaggcagaggccacagcctcaagtacagtgctat 26  	cctgaagcgaccaggc
231 a	atch 18.2%; Sc cal Similarity 73.0%; Pr 905; Conservative 0;				tgcaggggccctaaataaaagcctgactaagacatttggagatgacaa                     CGCAGAGCCCTCAAT			ctctgggatgctgcaggaccaggagcagt 	cacacacttcacctctccatccgccgct	tgctgctctgggctacagtgaacagccag                           TGCCGCTTAGGCTATAGGGAGCGACTAG	tgaccactgcaatgaccgtcgcatggctt. 	cttcttcgcagttctagtaaaggagagtg. 	tgtcctgaaccaagctttcgacgtgctgg.	ctgcaatgcactggccctgcgatcctaca 	cactcttgtttgggagcctgatgaccttg; 	cttcagcctggtggatgtggtcctgcagg( 	cctgaagcgaccaggc
CDS BASE COUNT	Query Ma Best Loo Matches	Qy 1906	Db 1	Oy 1966 Db 61	Oy 2026 Db 121	2	Db 137	Oy 2146 Db 154	Qy 2206 Db 214	Oy 2266 Db 274	Oy 2326 Db 334	Oy 2386 Db 394	Oy 2446 Db 454	Qy 2506 Db 514	Qy 2566 Db 574	Qy 2626 Db 634	Qy 2686

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Vector: pMERS-FL3 (Acc.No. AB009864)
R. Sitel: DraIII (CACTGTGTG)
Description: 1st strand clobA was primed with an oligo(dT) primer [ATGTGGCTTTTTTTTTTTT]; double-stranded cDNA was synthesized using specific 5 and 3' primers and amplified by pCR. The PCR product was digested with 5fil and size selection was performed to exclude fragments <1.5kb.The Sfil-digested PCR product was cloned into distinct braIII sites of pMERS-FL3. XhoI sites just outside the DraIII sites can be used to isolate the cDNA insert. Libraries were constructed by Sugano et al. (University of Tokyo, Institute of Medical Science). Custom primer used for sequencing (5' end primer [CGACCTGCAGCACA]).
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Macaca fascicularis brain cDNA clone:QmoA-12105, full insert
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1 (bases 1 to 2180)
Osada,N., Hida,M., Kusuda,J., Tanuma,R., Iseki,K., Hirai,M., Terao,K., Suzuki,Y., Sugano,S. and Hashimoto,K.
Isolation of full-length cDNA clones from macaque brain cDNA
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2719 tgaggagcetgaggaetgaa----tgetageceaagecaggeetgtgeetgeectaeee 2773
                                                                                                                                                     ABÓ66536.1 GI:15021873
ABO66536.1 GI:15021873
ABO66536.1 GI:15021873
ABOGGG CAPPING; fis (full insert sequence).
Macaca fascicularis adult male medulla oblongata CDNA to MRNA, clone_lib:macaque brain cDNA library QmoA clone:QmoA-12105.
Macaca fascicularis
                                                3060 gtcatggaataaaatcaagtgtgaaaaaaaaaaaaaaa 3099
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SPDVIIEAQPEGSDSEDGHGITQNVVLVDDVKKLSVCVSEKGREHGDAPVTKDETTGIS
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                                                                              QmoA"
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Pred. No. 4.9e-134;
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/db_xref="taxon:9541"
/clone="QmoA-12105"
    Location/Qualifiers
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Patent: WO 9950284-A 6 07-0CT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE);
ANDREAS (DE); WIRTH THOMAS (DE)
Location/Qualifiers
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                                       747 AAAAGGAAGAAGCATGGTGATGCGCCAGTTACAAAAGATGAGACCACCTGCATTTCACA
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                                                                                                 Match 15.3%; Score 473; DB 6; Length 36 Local Similarity 100.0%; Pred. No. 1.4e-111; les 473; Conservative 0; Mismatches 0; Indels
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 82454)
Lin,X., Kaul,S., Town,C.D., Benito,M.-I., Creasy,T.H., Haas,B.J.,
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. (10, pass 1 to 228283)
Rump, A., Hess, J., Galgoczy, P., Wirth, T. and Rosenthal, A. Genomic sequence from mouse chr. 1
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Best Local Similarity
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                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 38886)
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development: WO 9950284-A 12 07-OCT-1999;

AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP

ANDREAS (DE); WIRTH THOMAS (DE)

Location/Qualifiers

1 . 38886

/db_xref="taxon:10090"

/db_xref="taxon:10090"
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Mus musculus chromosome 1 clone MML, complete sequence.
AF312994
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                                                              linear
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Best Local Similarity 100.0%; Pred. No. 1.4e-111;
Matches 473; Conservative 0; Mismatches 0;
                                                                 DNA
                                                  Sequence 12 from Patent W09950284.
AX015909
                                                                                                                          AX015909.1 GI:10041652
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/qene="T32E8.1"
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[AC010704:103165...103353]."
comptement(join(<1...69,154...2280,2381...2449,2524...2577,
2676...3055,3315...>3320))
/gene="T32E8:1"
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/gene="T32E8:1"
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PLLSSPSKOLLSKSCPPRAEDSSGEMGELEQIGGSSGKRIFSSMSLDAVTEA
LEKGEAFKALFWHNNEAPCKIDGVPTDILINGNVCOSRAVEDDYVIKLDPLSL
WPKMKGFVTESAAKPEGTNSPPEKDDKKAROKNGTDVVEGFEDGFSKNKSSVIGKGAK
NGVTPSSPPSLDSCLGSFCEDKGNACAVDLKLGILSFPHKRPTGQVAVVEKSIVRD
SIVCILDVKGWIHTHKESDPRKCKSPLELSDDRYVQLMPADPRFPKIIVPFHVLGSIR
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Wu,D., Maiti,R., Ronning,C.M., Koo,H., Fujii,C.Y., Utterback,T.R., Barnstead,M.E., Bowman,C.L., White,O., Nierman,W.C. and Fraser,C.M. Arabidopsis thaliana chromosome 1 BAC T32E8 genomic sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (19-JAN-2001) The Institute for Genomic Research, 9 Medical Center Dr. Rockville, MD 20850, USA, cdtown@tigr.org on Jan 19, 2001 this sequence version replaced gi:12280880.
                                                                                                                                                                                                                                                                                                        Submitted (21-0CT-1999) The Institute for Genomic Research, Medical Center Dr. Rockville, MD 20850, USA, xlin@tigr.org (bases 1 to 82454)
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/cultivar="Columbia"
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/chromosome="1"
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Lin, X. and Kaul, S.
Direct Submission
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Town, C.D. and Kaul, S.
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                                                                 AAAAATATCAATGTTGCCTCCATTACTGTCAGAGAACGTAGGTTCACTTAGTCCAGGAGC 1199
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// product="putative protein kinase; 18583-21234"
// protein_id="AAG51619.1"
// protein_id="AAG51619.1"
// protein_id="AAG51619.1"
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GB:CAA72680 [Arabidopsis thaliana]"
1201(18883. 18916,19056. .19948,20068. .20268,20382. .20543,
20662. .21234)
/gene="13288.5"
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CILYQMVYGRTPFADYKTFWAKFKVITDPNHEITYNQLSNPWLIDLMKKCLAWDRNQR
WRIPELLQHPFLAPPIPHEPQVKTIKLFSLIAESCGSDDDKANSMISQLEQLLSNPAP
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EDRPASGNGVAGILXWWYGGGWRRWFVLDDGVLSYTRIHGPKISLSVEMDRRSK
LIGGESLRFICRHSKRGDVHSPGRAFLGJIHLKVSSIGGSISDGKRFTVFFGTKSLHLR
AATSEDRAGNIELKAVKETFPRUSNEELMAGTTNVSVSTDKLRGRAMEEEVDETIIK
DCEDIMKNNFLALHDEVVSLKRYQYHLIDSKNVSNSPIRPSNGSFS"
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.29885,29967. .30160,30255. .30385,30469. .30562,
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[Arabidopsis thaliana]; Pfam HMM hit: PH (pleckstrin
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Pred. No. 8.8e-53;
0; Mismatches 596; Indels 12;
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/protein_id="AAG51621.1"
/db_xref="G1:12323289"
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|oin(<21802. .22203,22526. .>22921)
|/gene="raizeB6.6"
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/gene="T32E8.6"
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Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AND ACCOUNT OF THE PROPERTY OF
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                                                                                                                                      Patent: WO 9950284-A 5 07-OCT-1999;
AIGNER THOMAS (DE); HESS JOCHEN (DE); ROSENTHAL ANDRE (DE); RUMP
ANDREAS (DE); WIRTH THOMAS (DE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8577
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Aigner,T., Hess,J., Rosenthal,A., Rump,A. and Wirth,T.
Nucleic acid molecules which code proteins influencing bone
1 (bases 1 to 4999)
Aigner,T., Hess,J., Rosenthal,A., Rump,A. and Wirth,T.
Nucleic acid molecules which code proteins influencing bone
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/db_xref="taxon:10090"
11814 c 10825 g 14150 t
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/db_xref="taxon:10090"
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AX015908
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sequence clones from Drosophila dene Collection I (Rubin et al., Science 2000). The sequence has been subjected to integrity checks for sequence accuracy, presence of a poly tail and contiguity within 100 kb in the genome. Thus we believe the sequence to reflect accurately this particular cDNA clone. However, there are artifacts associated with the generation of cDNA clones that may have not been detected in our initial analyses such as internal priming, priming from contaminating genomic DNA, retained introns due to reverse transcription of unspliced precursor RNAs, and reverse transcription and unspliced precursor RNAs, and and relationship to other sequences, including its location and relationship to other sequences, please visit our Web site (http://fruitfly.berkeley.edu) or send email to conselection conselection man clatifity berkeley.edu)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Stapleton, M., Brokstein, P., Hong, L., Agbayani, A., Carlson, J., Champe, M., Chavez, C., Dorsett, V., Farfan, D., Frise, E., George, R., Gonzalez, M., Guarin, H., Li, P., Liao, G., Miranda, A., Mungall, C.J., Nunco, J., Pacleb, J., Paragas, V., Park, S., Phouanenavong, S., Wan, R., Yu, C., Lewis, S.E., Rubin, G.M. and Celniker, S. Donanenavong, S., Wan, R., Direct Submission

Lawrence Berkeley National Laboratory, One Cyclotron Road, Berkeley CA 94720, USA
Sequence submitted by:
Berkeley Drosophila Genome Project
Lawrence Berkeley National Laboratory
Berkeley Nosophila Genome Project
Lawrence Berkeley National Laboratory
Berkeley, CA 94720
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SKDLSANNAVIPLQDLAWRAERPRHPHOSQPSERSNSRRQALTGVVPVSTPAPVAMQLP
STATRASYQANDIPCLQPLSHLHVVSSPSIRLIAKKSKRALRNEVEALQDWYKHLS
HLSPDVNAYACQLIRKNEILSQLEWSQTRSEAHPQQVGYQGRHRHDSEVSATNNGSHV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This clone was sequenced as part of a high-throughput process to
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
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/db_xref="FLYBASE:FBgn0035111"
109. .3207
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Drosophila melanogaster LD37985 full length cDNA.
AY058669
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/strain="y; cn bw sp"
/db_xref="taxon:7227"
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/product="LD37985p"
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/db_xref="G1:16198179"
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/codon_start=1
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QQQPKLGFRQRNSKKNDGSGSNGTQSQKTELEAMRSYINKIYQRHYGMDHQLSEDLIF
KGMFSDLEAHAQRLVAAGTGRYVEEEIRVNRKNNRQAFIIMSTDREALERDGIVLLPV
ARRYAFDGDKVRAFVLNPGAQGSSKTAABSSGGISGKRSELSLADGEELSDDTESGGS
ESDTDNWYVISSDNCFRAFVTAITRETELRQIYGTISFTNPTKLCDDQLFYKFRFPYDL
RVPMYYPKDACAAHIGNKQQIDVSGLLYLAHILETDCNGHCIAELIQPVGRVGNLDD
ELATLIFHBGRADIKPFEQRFFDIYSOPSPPFISGEDLRQRKDLEKKWCIFTTDPWTARD
LDDAAVSIEKLGDNEZELGVHISDVSHFLIENDELDMIYKERSTSTYLANEYIHNLPQS
LCMRCSLLPGQDKFAFSVFWRNNGKGVMLQKKPEFCRTVINSCSQFAYEHAQKIIDNP
NEBFTENDFPTINGFRPDITRNRVLMLHDTASSIEKTRULDAGATINNNKLRFLDP
ITGEPLGSFEVEKQREARRLIEEFMLLANQAYARFHHDSFPDIAVLRHPPPLIKSLKA
LREKLLALGFELDYSSSKALQESMYRLCNBANPYANNACLSQLJMKPMARATYFCSE
GKESPADLMHYALSIPYTFYBIRRYPDLIVHKLLAAALKYCTPPKRAPDDLHTLT
KLANBRYNNAKKAGBSGNLYFRYPDILYMRLAAALKYCTPPKRAPDDLHTLT
KLANBRYNNAKKAGBSGNLYFRYPDILYMRALAAALKYCTPPKRAPDDLHTLT
KLANBRYNNAKKAGBSGNLYFRYPHNKQGIYMRAVVIELFQHMMNYTLESGHYIS
INYKMQKVLVDTHGVPNYILLARRNEKQSPRRLQLSVVPPCLITWDGKLTGFLKMEE
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INYKMQKVLVDTHGVPNYILIAERNLKQSPRKLQLLSVVY QI" DASE COUNT 1026 a 893 c 818 g 860 t ORIGIN

ä ATGCCTGTGCCGCCCACATCGGAAACAAGCAGCAAATAGACGTGTCCGGCCTCTTATACC 1546 1145 1205 1265 1786 1906 1445 1505 2023 1559 1619 aggactgiccccaggacticatgacccgacctaaagactitgccaacacgctgitcaict 1025 1085 TIGGCCGCGTGGGTAATTIGGATGACGAACTTAAGGCAATTCTGTTTCATAACGGTCTCC 1666 ccttcgaagtgggcgtccacatcgccgatgtgagttactttgttcctgagggatcctctt 1385 2083 agaaatacgccctgttttctccttcagaccaccgagtacctagaatttacgtacctctca 965 Gaps ttgggcaggctggtgaaatcgagcctgaaacagaaaggatactgacagaatatggtgtgg 1427 AGCTATICTACAAATTCCGACCGTACGATTTGCGTGTCCCCATGGTCTACGTTCCGAAGG gccgcatcatagactggaaggaggactgtaattttgccctggggcaactggctaagagtc TIGCCCATATACTCGAGACAGATICCAATGGGCACTGCATCGCTGAACTAATCCAGCCGG teccaectgatgaggtgggcaagagaagaacttaaggaaagaetgtatetteaecattg atccatcaactgctcgcgaccttgatgatgccctcgcctgcaggcggctcactgatggca 1847 AATATGAGATTGGCGTCCATATATCCGATGTTTCGCACTTCCTGATAGAGGACAATGAAC tggataaagtagctgctgagagagccacaagtgtctacttggtccagaaggtggtcccca ccttctctgtgatctggaagctgacccctgaaggcaagatccttgaagagtgg----t acttototgatttotottcagaagttottgaatgtotcootcaaagcotgoootggacaa GGGATATAAAGCCATTTGAGCAACGATTTATCGACATTTACTCCCAGCCGCCACCTCCGA ttggccgcactatcatccgttcttgcaccaaactgagctacgaccatgcccagagcatga 6 Length 3597; Indels 'Match 7.4%; Score 230; DB 3; Lv Local Similarity 47.3%; Pred. No. 1.8e-48; les 763; Conservative 0; Mismatches 840; Query Match Best Local S Matches 763 1026 1547 1146 1266 1787 906 1487 1086 1607 1907 996 1667 1206 1727 1326 1386 1446 2024 1506 1560 2084 1620 δλ Dp Óγ Db δλ QQ δý QQ οy g Qγ QQ Q OD ογ δ δy g δ qq δ 셤 Qγ qq Qγ

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2144 TCGACAACCCTAATGAACGGTTTACCGAGAACGACTTTCCGACCATCCTGAATGGATTA 2203
                         gogtogaggaggtgcaccaggcagtcctgaacctgcacagcattgcaaagcaactccgcc 1739
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                                                                                                                                                                    ATCCCGATGATATCAGAAATAGGGTGCTATGGCTGCACGACATTGCAAGCTCCATCGTA
                                                                      gecagegetttgtagatggegeactecgtttagateagetgaagettgetttaetetgg
                                                                                     accatgagactggactgcctcaaggatgtcacatctatgagtaccgagacagcaacaagc
                                                                                                                                          ATCCAATTACTGGCGAGCCGTTGTTTTGAAGTGGAGAAACAGCGAGAGGCTAACCGGC
                                                                                                                                                                                                                     tecetgageaggeetgetgegeeggeatececeaceacagaegatgeteagtgaee
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                                                                                                                                                                                                                                            TTCCGGATATCGCTGTACTGCGTAACCACCTTCCGCCACTTATTAAGTCCCTTAAGGCTT
                                                                                                                                                                                                                                                                                                                    ataaaaagcctgactaagacatttggagatgacaagtactctctggcccggaaggaggtgc
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AC098189.3 GI:17973688
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Nazoy, D. M., Adams, C., Adio-Oduola, B., Ali-osman, F.R., Allen, C., Alsprooks, S. L., Amaratunge, H. C., Are, J.R., Banks, T., Barbaria, J., Benrooks, S. L., Amaratunge, H. C., Are, J.R., Banks, T., Barbaria, J., Benrook, J., Biage, K., Bonnin, D., Bouck, J., Burch, P., Carron, T.F., Carren, M., Gavazos, S.R., Chacko, J., Chavez, D., Chen, G., Chen, R., Caveland, C.D., Cox, C., Coyle, M.D., Dathor, J., Ding, Y., Chank, J., David, R., Davila, M.L., David, R., Harla, B., Harla, R., Li, J., Li, Z., Lichtarge, D., Lieu, C., Liu, J., Liu, W., Lu, X., Lucier, R., Lui, J., Liu, W., Li, Z., Lichtarge, D., Lieu, C., Liu, J., Liu, W., Martinez, E., Massey, E., Manhiney, E., McLeod, M. P., Mohabbat, R., Martinez, E., Massey, E., Manhiney, E., McLeod, M., Shosh, L., Li, J., Li, Z., Martin, R., Massey, R., Martin, R., Massey, R., Relie, R
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NOTE: This is a 'working draft' sequence. It currently consists of 6 contigs. The true order of the pieces is not known and their order in this sequence record is
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Submitted (23-OCT-2001) Human Genome Sequencing Center, Department
Submitted (23-OCT-2001) Human Genetics, Baylor College of Medicine, One
Baylor Plaza, Houston, TX 77030, USA
On Dec 20, 2001 this sequence version replaced gi:17064556.

Center: Baylor College of Medicine
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Web site: http://www.hgsc.bcm.tmc.edu/
Contact: hgsc-help@bcm.tmc.edu
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* This record will be updated with the finished sequence
* as soon as it is available and the accession number will
* be preserved.
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Center project name: RP11-95H14

Center clone name: RP11-95H14

Center clone name: RP11-95H14

Center clone name: RP11-95H14

Center clone name: RP11-95H14

Sequencing Vector: Mingle: X025H3; 99% of reads
Sequencing Vector: Mingle: X025H3; 99% of reads
Chemistry: Dye-primer; 2% of reads
Chemistr
                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (Dases 1 to 162842)

Abola, A.P., Eruno, D., Conn, L., Dela Rosa, M., Faulkner, D., Federspiel, N., Glukhov, S., Hansen, N., Herman, Z.S., Hyman, R., Mao, J., Lam, B., Marathe, R., Miranda, M., Morehouse, A.J., Nguyen, M., Vu, S. and Davis, R.W.

Uppublished
                                                                                                                                                                                                                                                                                                          Direct Submission
Submitted (22-FBB-2000) DNA Sequencing and Technology Center,
Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                Center: Stanford DNA Sequencing and Technology Development
                                                                                                                                                                                                                              Bruno, D., Conn, L., Dela Rosa, M., Faulkner, D., Federspiel, N., Chikhov, S., Hansen, N., Hyman, R., Mao, J., Marathe, R., Morehouse, A. J., Oefner, P., Palm, C. J., Ramirez, D., Wilhelmy, J., Yu, S. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Web site: http://sequence-www.stanford.edu/group/human/
Contact: hum-info@sequence.stanford.edu
------- Project Information
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/organism="Homo sapiens"
/db_xref="taxon:9606"
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HTG: HTGS_PHASE1; HTGS_DRAFT; HTGS_FULLTOP; HTGS_ACTIVEFIN.
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Edwayota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Edwayota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eutheria; Primates; Catarrhini; Hominidae; Homo.

Mammalia; Eutheria: Primates; Catarrhini; Hominidae; Homo.

15. 1 (bases 1 to 345102)

18. Rump, A., Hess, J., Wen, G., Wirth, T. and Rosenthal, A.

M. Unpublished

15. 2 (bases 1 to 345102)

18. Rump, A., Hess, J., Wen, G., Menzel, U., Wirth, T. and Rosenthal, A.

19. Direct Submission

10. Submitted (11-OCT-2000) Genome Analysis, Institute of Molecular

10. Biotechnology, Beutenbergstrasse 11, Jena 07745, Germany

10. Location/Qualifiers

11. 345102

12. Adamism="Homo sapiens"

Adb_xref="taxon:9606"

//chromosome="2"
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AF312225
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Pred. No. 2.1e-44;
0; Mismatches 26;
/note="assembly_name:Contig61"
11475. .38208
/note="assembly_name:Contig62"
38309. .65511
/note="assembly_name:Contig63
clone_end:Sp6"
65652. .93881
/note="assembly_name:Contig68
/note="assembly_name:Contig65
clone_end:T7"
127939. .16288
/note="assembly_name:Contig65
clone_end:T7"
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AUTHORS
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6.9%; Score 215.4; DB 9; Length 345102;

Query Match

Search completed: July 8, 2002, 10:07:28 Job time: 7775 sec

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(ROSE/) ROSENTHAL A.
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N.Geneseq_0.2x80.2;*

1. $IDS1/gcgdata/hold-geneseq_geneseqn-embl_NAl981.DAT:*

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12: $IDS1/gcgdata/hold-geneseq_geneseqn-embl_NAl992.DAT:*

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Murine LOBO cDNA f
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                                                                                                                                                                  Description
                                                                                                July 8, 2002, 08:49:53; Search time 329.97 Seconds
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                     1736436 seqs, 858457221 residues
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Gapop 60.0 , Gapext 60.0
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Human lung tumour
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Human
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/product= "LOBO homologue"
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AAF457119

AAAS7904

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AAF97934
AAF59500
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ABA11740
                                                            AAS41220
AAZ23903
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125..2737
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AAZ23894;
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AAZ23894
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Wirth T;

Aigner T,

Rump A, Hess J,

99WO-EP02055 98DE-1013799

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a murine LOBO protein described in the method of the invention.
                                                                                         Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                                                                                                                                  Claim 1b; Page 126-130; 391pp; German.
                  WPI; 1999-601320/51.
P-PSDB; AAY50354.
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Sequence 3100 BP; 783 A; 795 C; 812 G; 710 T; 0 other;

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
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BP; 352 A; 433 C; 412

Sequence 1550

us-09-647-377-8.oli.rng

osteopathic;

LOBO; long bones; bone development; bone extension; skull; osteopathi diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.

musculus WO9950284-A2

Mus

07-0CT-1999

Murine LOBO genomic DNA fragment 2.

25-JAN-2000

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                                                                                                                                                               gaagccatggtgatggtgtcctgaaccaagcttcgacgtgctggtgctgcgctttggg
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     Length 1550;
                  Indels
                  0;
     20;
     DB
                  Mismatches
     Score 956; D
Pred. No. 0;
30.8%; Scc.
100.0%; Pre
          Similarity
                  926;
           Local
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AAZ23892 standard; DNA; 36901

AAZ23892 ID AAZ2

RESULT

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 473; DB 20; I Pred. No. 4.5e-169;
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100.0%; Pred
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Best Local Simi
Matches 473;
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gactgaatgctagcccaagccaggcctgtgcctgcctaccctgctggcttttaggaata
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AAZ23891
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
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   18380 ttaggggtcagggcaggggatgctgaggcctggcctgtgcttccctgagcagagaggatc 18439
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                                             ccagtcctcctgggcaggcagcccgcttctaccaggcgacccactgcccttccctgccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders –
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                                                                                     aggaaatggggggtttcagcaaatcagtgtcatggaataaaatcaagtgtgaa 3084
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Pred. No. 4.5e-169
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100.0%; Pred. No. "...
0; Mismatches
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Matches 473; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rosenthal A,
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                                                                                                                                                                                                                                                                                                                                                          Mus musculus
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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      osteopathic;
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                                                                                                                                                                                                                                                             20363
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                                                                                                                                                                                                      2852 ttatttttattttccttttattttacttttgcagctccagttttaaatgaactggaagg
20304 ttatttttattttccttttattttacttttgcagctcagtttttaaatgaactggaagg
20304 ttatttttattttcctttattttactttagcagctcagtttttaaatgaactggaagg
ttagggggtcaggggatggtgggggggctgggcctgtgcttccctgagcagaggatc
                                                                                                                                                                                                                                                                                                                                                             Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
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Gaps

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (1.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or parameterizal compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the mutine LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
                                                                                                                               1542 agatcettgaagagtggtttggeegeactateateegttettgeaeeaaactgagetaeg 1601
                                                                                    8518 agatccttgaagagtggtttggccgcactatccatcctttgcaccaaactgagctacg 8577
                                                                                                                                                                                               1662 caatttetecagageacagegtegaggaggtgeaceaggeagteetgaacetgeacagea 1721
                                                                                                                                                                                                                   8638 caattetecagagcacagcgtcgaggaggtgcaccaggcagtcetgaacctgcacagca 8697
                                                                                                                                                                                                                                                            Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
     Length 49999;
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                                   Indels
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 Score 236; DB 20;
Pred. No. 9.5e-80;
); Mismatches 0;
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Query Match 7.6%; Scc
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                                                                                                                                                                                  10563 accatgcccagagcatgatcgaaaatccaactgagaagatccctgaggaagagcttcccc 10622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          osteopathic;
                                                                                                                           1602 accatgoccagagcatgatcgaaaatccaactgagaagatccctgaggaagagcttcccc 1661
                                                                 1542 agatocttgaagagtggtttggccgcactatcatccgttcttgcaccaaactgagctacg 1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOBO; long bones; bone development; bone extension; skull; osteopathiodiagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
                                          Gaps
                                                                                                                                                                                                                                          Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                       0;
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           Length 49999;
                                       Indels
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         Score 236; DB 20;
Pred. No. 9.5e-80;
                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                         Murine LOBO homologue genomic DNA fragment 1.
7.6%; Sco. 100.0%; Pred. No. ...
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          invention.
                                                                                                                                                                                                                                                                                                                                                  AAZ23895 standard; DNA; 49999
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                                                                                                                                                                                                                                                                                                                                                                                                            25-JAN-2000 (first entry)
                   Similarity 100.0
36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rump A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1999-601320/51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the method of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rosenthal A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9950284-A2.
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                                  Matches 236;
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         Query Match
Best Local
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3.7%; Score 116; DB 20; Length 49999; 100.0%; Pred. No. 1.6e-34;

Query Match Best Local Similarity

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2000US-0229513.
2000US-0230438.
2000US-0231442.
2000US-0231443.
2000US-0231443.
2000US-0231443.
2000US-02314143.
2000US-02314143.
2000US-02314143.
2000US-02314143.
2000US-0231681.
2000US-023299.
2000US-023399.
2000US-023399.
2000US-023399.
2000US-023399.
2000US-0234974.
2000US-0234974.
2000US-0234997.
2000US-0244997.
2000US-0244997.
2000US-0246613.
2000US-0246528.
2000US-0246528.
2000US-0246529.
2000US-0246529.
2000US-0246539.
2000US-0246539.
2000US-0246531.
2000US-0249209.
2000US-0249213.
2000US-0249213.
06-SEP-2000; 206-SEP-2000; 206-SEP-2000; 206-SEP-2000; 208-SEP-2000; 208
     ö
                                Human; immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ss.
     Gaps
                                                                                           Human immune/haematopoietic antigen encoding cDNA SEQ ID NO:5590.
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0
      Mismatches
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2000US-0186628.
2000US-0186350.
2000US-0186374.
2000US-0198123.
2000US-0209467.
2000US-021829.
2000US-021829.
2000US-021829.
2000US-021829.
2000US-021829.
2000US-021829.
2000US-021829.
2000US-022526.
2000US-0225759.
2000US-0225779.
2000US-0225779.
2000US-0225779.
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                                                                                                                                                                                                                                                                   06-NOV-2001 (first entry)
     Matches 116; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                               WO200157182-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31-JAN-2000, 24-FEB-2000, 24-FEB-2000, 22-FEB-2000, 22-FEB-2000, 22-FEB-2000, 23-FEB-2000, 23-FEB-2000, 23-AuG-2000, 23-AuG-2000, 23-AuG-2000, 23-AuG-2000, 22-AuG-2000, 23-AuG-2000, 22-AuG-2000, 23-AuG-2000, 22-AuG-2000, 23-AuG-2000, 22-AuG-2000, 22-AuG-2000, 23-AuG-2000, 22-AuG-2000, 23-AuG-2000, 23-Au
                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
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                                                                                                                                                                                                                                      AAK60530;
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osteopathic;

/note= "partial sequence, no start codon given"

"LOBO"

/\*tag= a /product= '

Location/Qualifiers 1..784

Hess J, Aigner T, Wirth T;

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bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the human LOBO protein described
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This invention describes novel nucleic acids (I; designated LOBO (long
                                                                  LOBO; long bones; bone development; bone extension; skull; osteopathi diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example 3; Page 66-67; 391pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                               99WO-EP02055.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98DE-1013799
                          Human LOBO cDNA fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rosenthal A, Rump A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1999-601320/51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P-PSDB; AAY50353
                                                                                                                                                                Homo sapiens.
                                                                                                                                                                                                                                                                                                                                         WO9950284-A2
                                                                                                                                                                                                                                                                                                                                                                                                                             26-MAR-1999;
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                                                                                                                                                                                                        Key
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and
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5.2e-09;
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100.0%; Pred. No. ...
. 0; Mismatches
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                                      200005-0249244.
200005-0249245.
200005-0249264.
200005-0249265.
200005-0249297.
                                                                                                                                                                       200005-024930
200008-0250160
200008-0251030
200008-0251030
200008-025198
200008-0251479
200008-0251479
200008-0251866
200008-0251866
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (HUMA-) HUMAN GENOME SCI INC.
                                                                                                                                                                                                                                                                                                                                                                                                2000US-0251989.
2000US-0251990.
2000US-0254097.
                                                                                                                                                                                                                                                                                                                                                                                                                 08-DEC-2000; 2000US-0251990.
11-DEC-2000; 2000US-0254097.
05-JAN-2001; 2001US-0259678.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P-PSDB; AAM87749
                                   17-NOV-22000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
01-DEC-2000;
05-DEC-2000;
05-DEC-2000;
05-DEC-2000;
05-DEC-2000;
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08-DEC-2000;
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                                                                                                                        Gaps
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0
                                                                     1.6%; Score 49; DB 20; Length 1140;
100.0%; Pred. No. 5.1e-09;
ive 0; Mismatches 0; Indels
                                                                                                                                                                   Sequence 1140 BP; 231 A; 355 C; 334 G; 220 T; 0 other;
                                                                                                                                                                                                                                                                                                                                          AAZ23898 standard; cDNA to mRNA; 1784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human LOBO homologue cDNA to mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                             25-JAN-2000 (first entry)
                                                                                                                        Conservative
                                                                     Query Match
Best Local Similarity
Matches 49; Conserv
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Wirth T;

Homo

Key

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the human LOBO protein described in the method of the invention.
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                                                                                                                                                                     Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
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100.0%; Pred. No. 3.6e-09;
Live 0; Mismatches 0;
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                                                                                           Aigner T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 3; Page 272-300; 391pp; German.
                                                                                                                                                                                                                                  Example 3; Page 118-125; 391pp; German.
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                                                                                         Hess J,
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          98DE-1013799
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Best Local Similarity 100.0
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                                                                                             Rump A,
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                                                      (ROSE/) ROSENTHAL A.
                                                                                                                                  WPI; 1999-601320/51
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                                                                                             Rosenthal A,
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             27-MAR-1998;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bones)) encoding proteins infiliation of the control of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in Margorstic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloeplphysal dysplasia and achondroplasia. This sequence encodes a human LOBO protein described
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This invention describes novel nucleic acids (I; designated LOBO (long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders
                                                                          /*tag= a
/product= "LOBO homologue"
/note= "Partial sequence, no start codon given"
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100.0%; Pred. No. 4.8e-09;
tive 0; Mismatches 0; Indels
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                                                                                                                                                                                                                                                                                                                                                              Hess J, Aigner T, Wirth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 1b; Page 211-213; 391pp; German.
                                     Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           in the method of the invention.
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Best Local Similarity 100.
Matches 49; Conservative
                                                        1454
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                                                                                                                                                                                                                                                                                                                       (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                                           P-PSDB; AAY50355
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sapiens
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Wirth T;

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This invention describes novel nucleic acids (1; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or parameterula compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a human LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human; 5' EST; expressed sequence tag; secreted protein; cDNA isolation;
                                                                                                                                                                                                                                                                                                                                        Gaps
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                                                                                                                                                                                                                                   Sequence 49999 BP; 12607 A; 13453 C; 13304 G; 10635 T; 0 other;
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Pred. No. 3e-09;
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                                                                                                                                                                                                                                                                                    1.6%; Score ...,
100.0%; Pred. No. 3e-09
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Best Local Similarity 100.("">+-ches 49; Conservative
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                                                       DB 21; Leu.
1. 0.00048;
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Sequence 331 BP; 73 A; 112 C; 84 G; 59 T; 3 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA encoding novel human enzyme polypeptide #436.
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                                                                                                                                                                                                         296 ctcccggcccatgcagatggcactgtacttctqctc 331
                                                                     Query Match 1.2%; Score 36; DB Best Local Similarity 100.0%; Pred. No. 0.0 Matches 36; Conservative 0; Mismatches
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2000US-0198123.
2000US-0205515.
2000US-0209467.
2000US-0215135.
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2000US-0180628.
2000US-0184664.
2000US-0186350.
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2000US-0216880.
2000US-0217487.
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2000US-0218290.
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2000US-0225267
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16-MAR-2000;
17-MAR-2000;
18-APR-2000;
19-MAY-2000;
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28-JUN-2000;
30-JUN-2000;
07-JUL-2000;
07-JUL-2000;
11-JUL-2000;
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14-AUG-2000;
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2000US-0227009

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20000S-0246475.
20000S-0246476.
20000S-0246477.
20000S-0246478.
20000S-0246523.
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2000US-0232081.
2000US-0231968.
                        2000US-0229344.
2000US-0229345.
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2000US-0231244.
2000US-0231413.
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2000US-0237039
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20-OCT-2000;
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01-0NV-2000;
08-NOV-2000;
30-AUG-2000;
01-SEP-2000;
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01-SEP-2000;
01-SEP-2000;
05-SEP-2000;
06-SEP-2000;
06-SEP-2000;
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08-SEP-2000;
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29 - SEP - 2000;
02 - 0CT - 2000;
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26-SEP-2000;
27-SEP-2000;
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25-SEP-2000;
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Novel polypeptides and polynucleotides useful for diagnosing, preventing, treating neural, immune system, muscular, reproductive, pulmonary, cardiovascular, renal, proliferative disorders and cancerous
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2000US-0249264.
2000US-0249264.
2000US-0249297.
2000US-0249297.
2000US-0249300.
2000US-0249300.
2000US-0250160.
2000US-0250160.
                                             200005-0249213.
200005-0249214.
200005-0249215.
200005-0249216.
200005-0249217.
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2000US-0251856.
2000US-0251868.
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17-NOV-2000; 17-NO
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05-JAN-2001;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diseases
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The present invention relates to the isolation of novel human enzyme polypeptides (AAU22915-AAU23814), and the cDNA and genomic sequences encoding them. The enzyme polypeptides of the invention may comprise the functional classes of oxidoreductases, transferases, hydrolases, lyases, isomerases or ligases. The sequences of the invention are useful in the diagnosis, treatment, prevention and/or prognosis of a wide range of diagnosis, treatment, prevention and/or prognosis of a wide range of disorders including hyperproliferative disorders (e.g. cancer), immunodeficiency disorders (e.g. AIDS) autoimmune disorders

(e.g. arthritis), neurological disorders (e.g. Alzheimer's disease), catabod-related disorders (e.g. phenylketonuria), inflammatory disorders

(e.g. asthma), cardiovascular disorders (e.g. atherosclerosis), blood-related disorders (e.g. haemophilia), reproductive disorders

(e.g. infertility) and infectious disorders (e.g. influenca). The polypucleotides of the invention can also be used in gene therapy. AAS41684 represent cDNA sequences encoding for the novel human corymer. The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO cat ftp. wipo.int/pub/published\_pct\_sequences. Gaps 1.0%; Score 32; DB 22; Length 428; 100.0%; Pred. No. 0.015; Sequence 428 BP; 101 A; 94 C; 122 G; 106 T; 5 other; Query Match 1.0%; Score 32; DB Best Local Similarity 100.0%; Pred. No. 0.0 Matches 32; Conservative 0; Mismatches

Claim 4; SEQ ID No 446; 1180pp; English.

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1073 ctggctaagagtcttggggcaggctggtgaaat 1104

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a human LOBO protein described in the method of the invention.
                                                                                                                                              LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ds.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hess J, Aigner T, Wirth T;
                                                                                                            Human LOBO homologue genomic DNA fragment 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 3; Page 328-356; 391pp; German.
AAZ23903 standard; DNA; 49999 BP.
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                                                                         25-JAN-2000 (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                 (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                WO9950284-A2
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Copyright (c) 1993 - 2000 Compugen Ltd.
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Chlamydia pneumoni
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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a murine LOBO protein described in the method of the invention.
                                                                                          Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                                                                                                                              Claim 1b; Page 126-130; 391pp; German
                  WPI; 1999-601320/51
                                            P-PSDB; AAY50354
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Sequence 3100 BP; 783 A; 795 C; 812 G; 710 T; 0 other;

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Qy Db	1261	cattgatccatcaactgctcgcgaccttgatgatgccctcgcctgcaggcggctcactga 1320 
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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or parameterical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achodroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
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LOBO; long bones; bone development; bone extension; skull; osteopathi diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
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Similarity 89.4%;
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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the human LOBO protein described in the method of the invention.
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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or paramaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
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qq

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qq

Dp ŏλ

Qγ g δλ qq qq

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20000S-0216880.
2000US-0217487.
2000US-0218290.
2000US-0218290.
2000US-0228213.
2000US-0225213.
2000US-0225214.
2000US-0225266.
2000US-0225266.
2000US-0225266.
2000US-0225266.
2000US-0225267.
2000US-0225267.
2000US-0225759.
2000US-0225759.
2000US-0226681.
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16-AU
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29-SEP-2000;
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13-OCT-2000;
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                                                                              Gaps
                                                                                                                                                            2672 aagtacagtgctatcctgaagcgaccaggcctggagaaggcgtctgatgaggagcctgaggagcctgaggagcctgaggagcctgaggagcctgaggacctgagagacctgagagagcgtctgatgaggagcctgag
                                                                                                                                                                                                                                                                                                                                           Human immune/haematopoietic antigen encoding cDNA SEQ ID NO:5590.
                                                                            0;
                                          Query Match 15.3%; Score 473; DB 20; Length 38886; Best Local Similarity 100.0%; Pred. No. 1.7e-113; Matches 473; Conservative 0; Mismatches 0; Indels 0;
Sequence 38886 BP; 10087 A; 9920 C; 9356 G; 9523 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-FEB-2000; 20000S-0186628.
24-FEB-2000; 20000S-0184664.
26-MAR-2000; 20000S-0184564.
17-MAR-2000; 20000S-0199076.
18-APR-2000; 20000S-0199076.
19-MAY-2000; 20000S-0199123.
19-MAY-2000; 20000S-0205515.
07-JUN-2000; 20000S-020467.
30-JUN-2000; 20000S-0214886.
30-JUN-2000; 20000S-0214886.
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AAK54951 to AAK64702 encode the human immune/haematopoietic antigen (I) amino acid sequences given in AAM82170 to AAM9121. (I) have cytostatic activity, and can be used in gene therapy and vaccine production. (I) proteins and polynucleotides may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate (I) expression. For example, they may be used to treat disorders associated with decreased expression by rectifying mutations or deletions in a patient's genome that affect the activity of (I) by expressing inactive proteins or to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    encoding human immune/hematopoietic antigen polypeptides, eventing, diagnosing and/or treating cancers and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1; SEQ ID NO 5590; 3071pp + Sequence Listing; English.
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2000US-0251868.
2000US-0251869.
2000US-0251899.
2000US-0254990.
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2000US-0249300.
2000US-0250160.
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2000US-0246477.
2000US-0246478.
2000US-0246523.
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2000US-0249265.
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2000US-0251030.
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2000US-0256719.
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2000US-0249211.
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2000US-0249207
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P-PSDB; AAM87749.
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supplement the patients own production of (I). Additionally, (I) polynucleotides may be used to produce the secreted (I), by inserting the nucleic acids into a host cell and culturing the cell to express the protein. (I) proteins and polynucleotides may be used to prevent, diagnose and treat immune/haematopoietic-related diseases, especially cancers and cancer metastases of haematopoietic-derived cells. AAK64703 to AAK87694 represent human immune/haematopoietic antigen genomic sequences from the present invention. AAK84942 to AAK54950 and AAM82169 represent sequences used in the exemplification of the present invention.
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                                                                                                                                           Sequence 925 BP; 216 A; 258 C; 262 G; 185 T; 4 other;
                                                                                                                                                                                     DB 22;
                                                                                                                                                                                     Score 277.8; DB 2 Pred. No. 7.4e-63;
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Matches 499; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
                                    LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This invention describes novel nucleic acids (I; designated LOBO (long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1542 agatecttgaagagtggtttggeegeactateateegttettgeaceaaactgagetaeg 1601
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1662 caatttotccagagcacagcgtcgaggaggtgcaccaggcagtcctgaacctgcacagca
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acids encoding proteins which influence bone development, for treating and studying bone disorders -
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Pred. No. 4.4e-51;
                                                                                                                                                                                                                                                                                                                                                                                Wirth
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                                                                                                                                                                                                                                                                                                                                                                                Ļ
                                                                                                                                                                                                                                                                                                                                                                                Aigner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example 3; Page 69-97; 391pp; German.
LOBO genomic DNA fragment 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BP.
                                                                                                                                                                                                                                                                                                                                                                              Hess J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.68;
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                                                                                                                                                                                                                                                    99WO-EP02055
                                                                                                                                                                                                                                                                                          98DE-1013799
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Matches 238; Conservative
                                                                                                                                                                                                                                                                                                                                                                              Rump A,
                                                                                                                                                                                                                                                                                                                                   (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1999-601320/51.
                                                                                                                                                                                                                                                                                                                                                                            Rosenthal A,
                                                                                                                                                                W09950284-A2
                                                                                                                                                                                                                                                  26-MAR-1999;
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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the mutine LOBO protein described in the method of the invention.
            LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1542 agatecttgaagagtggtttggeegeactateateegttettgeaceaaaetgagetaeg 1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1602 accatgcccagagcatgatcgaaaatccaactgagaagatccctgaggaagagcttcccc 1661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1722 ttgcaaagcaactccgccgccagcgtttgtagatggcgcactccgtttagatcagctga
                                                                                                                                                                                                                                                                                                                                                              bone development,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 49999;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7.6%; Score 236.8; DB 20; 99.2%; Pred. No. 4.4e-51; tive 0; Mismatches 2;
                                                                                                                                                                                                                                                                                           Wirth
                                                                                                                                                                                                                                                                                                                                                          Nucleic acids encoding proteins which influence useful for treating and studying bone disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO: 34871.
                                                                                                                                                                                                                                                                                           Aigner T,
                                                                                                                                                                                                                                                                                                                                                                                                             Example 3; Page 161-189; 391pp; German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BP.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAC30796 standard; cDNA; 331
                                                                                                                                                                                       99WO-EP02055.
                                                                                                                                                                                                                         98DE-1013799
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Best Local Similarity 99.2
Matches 238; Conservative
                                                                                                                                                                                                                                                                                          Rosenthal A, Rump A,
                                                                                                                                                                                                                                                      (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                         WPI; 1999-601320/51.
                                                                                     Mus musculus.
                                                                                                                   409950284-A2
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EST; expressed sequence tag; secreted protein; cDNA isolation;

Human; 5'

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Human; oxidoreductase enzyme; transferase; hydrolase; lyase; isomerase; ligase; hyperproliferative disorder; immunodeficiency disorder; autoimmune disorder; neurological disorder; metabolic disorder; inflammatory disorder; cardiovyscular disorder; reproductive disorder; ablood-related disorder; infectious disorder; gene therapy; cytostatic; anti arthritic; nephrotropic; anticoagulant; ss.
                              cDNA encoding novel human enzyme polypeptide #436.
                                                                                                                                                                                                                                                                                                                                                                                            200005-019076
200005-019076
2000005-0209467
2000005-0209467
2000005-0216486
200005-0216486
200005-021647
200005-021647
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2000US-022526.
2000US-0225267.
2000US-022528.
2000US-022528.
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2000US-0225758.
2000US-0225759.
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2000US-0231968.
2000US-0232397.
2000US-0232398.
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2000US-0229345.
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2000US-0186350
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17-DEC-2001 (first entry)
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14-AUG-2000;
14-AUG-2000;
18-AUG-2000;
22-AUG-2000;
22-AUG-2000;
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16-MAR-2000;
11-MAR-2000;
18-APR-2000;
19-MAY-2000;
20-JUN-2000;
30-JUN-2000;
30-JUN-2000;
30-JUN-2000;
30-JUL-2000;
07-JUL-2000;
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11-JUL-2000;
26-JUL-2000;
26-JUL-2000;
26-JUL-2000;
14-AUG-2000;
14-AUG-2000;
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14-AUG-2000;
14-AUG-2000;
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14-AUG-2000;
14-AUG-2000;
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01-SEP-2000;
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                                                                                                                                                                                 Homo sapiens.
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                                                                                                                                                                                                                                                  02-AUG-2001.
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                                                                                                                                                                                                                                                                                                                                                                                            The present sequence is one of a large number of 5' ESTs derived from mRNAs encoding secreted proteins. No ORF has yet been conclusively identified within the present sequence. The 5' ESTs were prepared from total human RNAs or polyA+ RNAs derived from 30 different tissues. EST sequences usually correspond mainly to the 3' untranslated region (UTR) of the mRNA because they are often obtained from oligo-dT primed cDNA libraries. Such ESTs are not well suited for isolating cDNA sequences GDNA sequences have been obtained, the full 5' UTR is rarely included. S' ESTs are derived from mRNAs and even in those cases where longer CDNA sequences have been obtained, the full 5' UTR is rarely included. S' ESTs are derived from mRNAs and genomic DNAs. 5' ESTs are also used in diagnostic, forensic, qene therapy and chromosome mapping procedures. They are used to obtain full better an regulatory sequences and to design
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1974 gtgacctggtggagttctgtgaccagatggggctgccatggatgtcagctctgcagggg 2033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1854 acaagettgtagaggagttcatgeteetggecaacatggeggtggeceacaagatettee 1913
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                                                                                                                                                                                                                                                                                                                   obtaining cDNAs and genomic DNAs that correspond to 5'ESTs and for diagnostic, forensic, gene therapy and chromosome mapping procedures
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 331 BP; 73 A; 112 C; 84 G; 59 T; 3 other;
                                                                                                                                                                                                                                   Giordano J;
                                                                                                                                                                                                                                                                                                                                                                   Claim 1; SEQ ID 34871; 71pp + CD-ROM; English.
                                                                                                                                                                                                                                  Duclert A,
   gene therapy; chromosome mapping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              expression and secretion vectors
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                                                                                                                                 21-FEB-2000; 2000EP-0200610
                                                                                                                                                                   99US-0122487
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
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                                     Homo sapiens.
                                                                   EP1033401-A2.
                                                                                                                                                                 26-FEB-1999;
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hes 262;
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Best Local S
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RESULT 1
AAS41220
ID AAS4
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2000US-0236327.
2000US-0236367.
2000US-0236368.
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200005-0249215.
200005-0249216.
200005-0249217.
200005-0249217.
                                                               2000US-0233064.
2000US-0233065.
2000US-0234223.
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2000US-0241809.
2000US-0241826.
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2000US-0246613.
2000US-0249207.
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2000US-0249209.
2000US-0249210.
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2000US-0246523.
2000US-0246524.
2000US-0246525.
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2000US-0246527.
2000US-0246527.
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2000US-0235836.
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2000US-0235484
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2000US-0241787.
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2000US-0246610
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2000US-0246477
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2000US-0249213
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2000US-0251988,
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                           14. SEP-2000;
14. SEP-2000;
14. SEP-2000;
14. SEP-2000;
21. SEP-2000;
25. SEP-2000;
25. SEP-2000;
26. SEP-2000;
27. SEP-2000;
29. SEP-2000;
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02-0c1-2000)
03-0c1-2000)
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The present invention relates to the isolation of novel human enzyme polypeptides (AAU22915-AAU23814), and the cDNA and genomic sequences encoding them. The enzyme polypeptides of the invention may comprise the functional classes of oxidoreductases, transferases, hydrolases, lyases, clasces or ligases. The sequences of the invention are useful in the disorders including hyperproliferative disorders (e.g. and a wide range of manunodeficiency disorders (e.g. Alzheimer's disease), metabolic disorders (e.g. phenylketonuria), inflammatory disorders (e.g. arthritis), neurological disorders (e.g. alzheimer's disease), metabolic disorders (e.g. phenylketonuria), inflammatory disorders (e.g. arthritis), neurological disorders (e.g. alzheimer's disease), blood-related disorders (e.g. thempophilia), reproductive disorders (e.g. arthritis) and infectious disorders (e.g. influenza). The opymercetides of the invention can also be used in gene therapy. AAS40785-AAS41684 represent cDNA sequences encoding for the novel human Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at the print of the print of the print of the vipo int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                              Novel polypeptides and polynucleotides useful for diagnosing, preventing, treating neural, immune system, muscular, reproductive, pulmonary, cardiovascular, renal, proliferative disorders and cancerous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.5%; Score 203; DB 22; Length 428; llarity 87.4%; Pred. No. 2.7e-43; Conservative 1; Mismatches 31; Indels (
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                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 4; SEQ ID No 446; 1180pp; English.
                                                                                                                                                                                                                                                  SM
2000US-0256719.
2000US-0251879.
2000US-0251866.
2000US-0251869.
2000US-0251869.
2000US-0251989.
2000US-0254097.
2000US-0254097.
                                                                                                                                                                                                        (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                               Barash SC,
                                                                                                                                                                                                                                                                                     WPI; 2001-465566/50.
P-PSDB; AAU23350.
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Best Local Similarity
Matches 221; Conserv
05-DEC-2000; 2
06-DEC-2000; 2
08-DEC-2000; 2
08-DEC-2000; 2
08-DEC-2000; 2
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11-DEC-2000; 2
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gggcaactggctaagagtcttgggcaggctggtgaaatcgagcctgaaacagaagggata 1126 caaagcctgccctggacaatcccacctgatgaggtgggcaagagaagagacctaaggaaa 1246 ; 0 aggoggctcactg 1319 253 aagccactcgctg 1067 1127 61 1187 121 1247 181 1307 241 g QQ ď Qγ q Qy g QΛ ŏ qq

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RESULT

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ttcacctctcccatccgccgctttgctgacgtcatagtgcaccgcctcctggctgctgct 2272
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                                 1385 ttggataaagtagctgctgagagagccacaagtgtctacttggtccagaaggtggtccc 1444
                                                                                              atgetteccaggettetgtgtgaggaactetgeageeteaaceceatgaetgaeagetg 1504
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2694 aatctggaagtgggcgttcacatagccgacgtaagtcactttattcgtccaggaaacgca 2753
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                                                                  2754 ctggacatggaggcagcggccaggggaaccaccgtgtacttggtgggcaaacgaatcgac
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New isolated nucleic acid detection reagent for detecting 1000 or more genes from Drosophila and for elucidating cell signalling and cell-cell
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                                                                                                                   Drosophila melanogaster expressed polynucleotide SEQ ID NO 27656
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RESULT 15
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                        New isolated nucleic acid detection reagent for detecting 1000 or more genes from Drosophila and for elucidating cell signalling and cell-cell
                                                                                                                                                                                                                                                                                                                                                                          The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from brosophila. The invention useful in developmental biology and in elucidating cell signalling and ell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL36511), expressed DNA sequences (ABL16176-ABL36511), expressed DNA sequences (ABL16176-ABL36511).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1086 ttgggcaggctggtgaaatcgagcctgaaacagaagggatactgacagaatatggtgtgg 1145
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Pred. No. 1.6e-37;
0; Mismatches 581; Indels 9;
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                                                                                                                                                                                       EW.
                                                                                                                                                                                         Myers
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Similarity 48.7%;
                                                                                                   2000US-191637P.
2000US-0614150.
                                                                  23-MAR-2001; 2001WO-US09231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 48.7 Matches 561; Conservative
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                                                                                                                                                     (PEKE ) PE CORP NY
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WO200171042-A2
                                                                                                   23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                             interactions
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                                 27-SEP-2001
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LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ds.
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tggataaagtagctgctgagagagccacaagtgtctacttggtccagaaggtggtcccca 1445
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                                                        tggataacatagtgaaggaacgetetacgtetatttatttageeaacgaggtaateeaca
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(ROSE/) ROSENTHAL A.

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7;
                                                                                                                                       bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the human LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                              2672 aagtacagtgctatcctgaagcgaccaggc------ctg 2704
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tttattttacttttgcagctcagtttttaaatgaactggaaggttaggggtcagg--gca
                                                                        Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                                                                                                      This invention describes novel nucleic acids (I; designated LOBO
                                                                                                                                                                                                                                                                                                                               Score 182.2; DB 20; Length 1330;
Pred. No. 5.6e-37;
0; Mismatches 93; Indels 59;
                                                                                                                                                                                                                                                                                          Sequence 13330 BP; 2787 A; 4068 C; 3977 G; 2498 T; 0 other;
                            Wirth T;
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                                                                                                             Example 3; Page 118-125; 391pp; German.
                           Aigner
                          Hess J,
                                                                                                                                                                                                                                                                                                                               Ouery Match 5.9%;
Best Local Similarity 70.7%;
Matches 367; Conservative (
                       Rosenthal A, Rump A,
                                                 WPI; 1999-601320/51
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7.78 54.9 109. 164. 174 176.

146.91 7 131.66 5 126.32 1 123.12 1 122.64 122.56 1

8.00 1 8.00 1 8.00 1 8.00 1 8.00 1 8.00 1

osteopathic;

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (1.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a murine LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                            LOBO; long bones; bone development; bone extension; skull; osteopathi diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ss.
                                                                                                                        seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA1999.DAT:AAZ23894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
/SIDSI/gcgdata/hold-geneseq/geneseqn-embl/Na2000.DAT:AAC18774 + /SIDSI/gcgdata/hold-geneseq/geneseqn-embl/Na2000.DAT:AAZ4805 + /SIDSI/gcgdata/hold-geneseq-geneseqn-embl/Na2000.DAT:AAZ4805 + /SIDSI/gcgdata/hold-geneseq/geneseqn-embl/Na1999.DAT:AAX40512 + /SIDSI/gcgdata/hold-geneseq-geneseqn-embl/Na2001A.DAT:AAX40512 + /SIDSI/gcgdata/hold-geneseq-geneseqn-embl/Na2001A.DAT:AAU9292 + /SIDSI/gcgdata/hold-geneseqy-geneseqn-embl/Na2000.DAT:AAU9592 + /SIDSI/gcgdata/hold-geneseq/geneseqn-embl/Na2000.DAT:ABX5577 +
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Gaps: 0
Percent Identity: 100.000
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125..2737
/*tag= a
/product= "LOBO homologue"
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                                                                                                                                                         seq_documentation_block:
ID AAZ23894 standard; cDNA to mRNA; 3100
                                                                                                                                                                                                                                                                   Murine LOBO homologue cDNA to mRNA.
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Quality: 870.00
Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23894
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P-PSDB; AAX50354.
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                                                                                                                                                                                                      AAZ23894;
                                                                                                                                                                          WARN: XGAPOP and YGAPOP must be equal. Assuming YGAPOP=XGAPOP=60.000 WARN: XGAPEXT and YGAPEXT must be equal. Assuming YGAPEXT=XGAPEXT=60.000
                                                                  software, version 4.5,
        out_format : pfs
      OM of: US-09-647-377-9 to: N_Geneseq_032802:*
                                                                  About: Results were produced by the GenCore Copyright (c) 1993-2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                          Query length: 870
Database: N_Geneseq_032802:*
Database sequences: 1736436
Database length: 85845721
Search time (sec): 241.170000
                                   Date: Jul 8, 2002 2:17 PM
                                                                                                                                                                                                                                                                                                                                 Search information block:
Query: US-09-647-377-9
                                                                                                              Command line parameters:
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Align seg 1/1 to: AAZ23894 from: 1 to: 3100

	OAr 17     CAG 174	lya 34      GTG 224	he 50     TT 274	yTh 67      AAC 324	aP 84      CT 374	al 100     TT 424	uPr 117       TCC 474	eG 134    AG 524	ro 150     CC 574	uAl 167       GGC 624	yr. 184 	ys 200      AA 724	G1 217    CA 774	1V 234     G 824	ys 250         874	Se 267 11 TC 924	SP 284      TC 974	le 300     C 1024
	1yThrPr             GGACCCC	SerProG  - - - - - TCGCCAG	SSerIleP           GAGCATAT	sargGl       sagagG	HisGluAl             CATGAAGC	spGlyValV                 ATGGAGTTG	Lysteuteu 	LysGluIl 	GlyHisHisP             GACATCACC	ellegl        FATAGA	hrsergl 	pArgGlyLy:           CAGAGGAAA	CATACCA	aLysva 	yIleLeuLys             CATCCTGAAA	aLeuPhe	uLysaspCys	reupheile
0010	gSerProG 	ValGlyAla          GTTGGTGCT	YLYSLYSLYS 	luGlyLeuLy:               AAGGCTTGAA(	OLYSLYSPhel 	ellea 	Valva         GTTGT	SnASP         ATGAC	Lycys         crem	oAspValil	isGlyAsnT               ATGGCAACA	ThrProasp/               ACTCCTGACA	uAsnThrE             SAACACCC	GlnLysSerAla 	Thrg1	eLysLysTyrAla                   TAAGAAATACGC	alProLeul            TACCTCTC	AlaasnThri              GCCAACACG
4	ASDLEUAR           AACCTTCG	erala       srgcr	CArgG1	ValSerG         GTTTCAG	eAsnPr            CAACCC	rgAspilePP            GGGACATTTI	AspleuVa               GACCTTGT	LysProGluSer                  AAACCAGAGAGC	rogluglug] 	SerGlyPr 	luAspargH               AAGATAGAC	erlleser            caarcrcr	tLysaspgli 	er Leu 	erArgAlaAla 	AspLeuPheLys 	JILETYTV 	LysaspPhea. 
100	YrLysLeu               ACAAGCTG	lValGlyProse	nLysSerMet 	LysGluAsp' 	Leuargil         TTGAGAAT	pGlyAspAı           rGGrGATCC	euAsnGly          TAAATGGG	rsalavally 	ASPILEP           SACATCC	LysGlyTrp! 	rAspserGl                CGACTCAGA	LysLysLeus	rovalmet	rLeuSerGluLysSe 	iss 	Ser	alProAr         rACCTAG	ArgPro
	SProAspT	erSerVa 	SerLysasnI            TCAAAGAACA	rMetSer 	lnGlyval          AGGGTGTA	SerProAs            TCTCCGGA	nArgAlaL         TAGAGCCT	GlnTrpLys 	TyrGluAlaA            TATGAAGCTG	SerArg 	spaspse            argacag	Slyval	SerSerThrP	3613 1111 AGGC	eLeuGluLysLysF 	aAspLysAsr             TGATAAGAAC	SphisargV            accaccGAG	pPheMetThrA              CTTCATGACCO
,	MetasnHi              ATGAACCA	gGlyvals         AGGTGTGT	splyslys              ACAAAAG	GluThrTy:             GAAACCTA(	rLeulleG              ACTTATCC	hellePro          rcarrccr	AlaArgAsn/ 	ogluaspg         TGAGGATC	lualaThr'             AAGCTACT	LeuGlnGl:               CTGCAGCA(	aGlnPheA:          rcaGrrrG	euValAsp(           rGGrrGAr	Gluaspse:               Gaagattc	nAspThrArd	alfyrilei            TTACATC1	LeuLeuAla 	rProSerAs             TCCTTCAGA	roginaspi 
	1	17	34	51	325	375	101	117	134	151	167 625	184 675	201 (725 (	217 1	234 8	251 I	267 1	284 I

lnLe 317      AACT 1074	lyI 334     GGA 1124	Leu 350      CTT 1174	1G1 367      	erT 384        A 1274	31y 400      3GC 1324	oGl 417      GA 1374	yrL 434      ACT 1424	Leu 450      CTC 1474	pLy 467      GAA 1524	lei 484      CA 1574	Glu 500     GAA 1624	ogl 517           	lea 534      TTG 1724	Asp 550      GAT 1774	nGl 567      AGG 1824	LH 584 	Pro 600      
LeuGlyG         CTGGGGC	luThrGluG               AAACAGAAG	erGluVal              CAGAAGTT	AspGluVa           GATGAGGT	eAspProS           TGATCCAT	euThrAsp           TCACTGAT	PhevalPr         TTGTTCC	rServalT 	ysGluGlu              GTGAGGAA	Valiletr <sub> </sub> 	yargihri 	erMetile          GCATGATC	leSerPro	uHisSerI              GCACAGCAT	euArgLeu/             TCCGTTTAC	euProGl	lGluGluPh             AGAGGAGTT	rgThrPheE 
snPheAla          ATTTTGCC	31uProG          3AGCCTG	pPhesers 	leProPro                TCCCACCT	PheThrIl          TTCACCAT	sArgargi          CAGGCGGC	alSerTyr           TGAGTTAC	Argalath:              AGAGCCAC	greuteuc              GCTTCTGT	hrPheSer 	TrpPheG1	AlaGlnS         GCCCAGA	euProProi 	LeuAsnLei           CTGAACCT(	SlyAlaL         SGCGCAC	luthrglyte                AGACTGGAC3	LysLeuVa] 	sIlePheAr 
uAspCysA            GGACTGTA	lyglulled              GTGAAATCO	PheserAs          TTCTCTGA	ofrpthri             CTGGACAA	spCysile             ACTGTATC	LeuAlaCy 	eAlaAspV 	laAlaGlu          CTGCTGAG	tLeuProAr                GCTTCCCAG	PLYSLeuT 	euGluGlu           TTGAAGAG	Tyrasphis           Tacgaccar	uGluGluL            GGAAGAGC	Inalavali              AGGCAGTC	PheValAsp             TTGTAGAT	AsphisG 	spSerAsnI              ACAGCAACA	laHisLy 
pTrpLysGl           CTGGAAGGA	yGlnAlaG 	lyvalAsp           GTGTGGAC	SerLeuPr             AGCCTGCC	LeuargLysa          CTAAGGAAAG	spaspala              ATGATGCC	ValHisIl          GTCCACAT	pLysvala         TAAAGTAG	alProMe         TCCCCAT	MetThras          ATGACTGA	yLysileL 	sLeuSer          ACTGAGC	IleProGl	uValHisG              GGTGCACC	rgGlnArg)          GCCAGCGC	PheThrLeu/             rrrACTCTG	uTyrArgAs             GTACCGAGI	etalavala          rGGCGGrGG
leIleAs        rcaraga	SerLeuGl              AGTCTTGG	hrGluTyrG          CAGAATATG	euProGln:             TCCCTCAA	Argasp         AGAGAC	gaspleua: 	luValGly              AAGTGGGC	SerLeuAs          TCTTTGGA	nLysvalv 	euAsnProl         TCAACCCC	ProGluG1 	rCysThrLy:              TGCACCAA	3luLys        3AGAAG	valGluGl         GTCGAGGA(	nLeuArgA:              ACTCCGCC	sLeuAla         3CTTGCT	IleTyrGlu 	ualaasnMe 
CysArgI        TGCCGCA	uAlaLys         GGCTAAG	leLeuTh        TACTGAC	GluCysLe	yLysarg         Caagaga	hralaar          CTGCTCG	ThrPheG         ACCTTCG	uGlyser         GGGATCC	euvalGl        TGGTCCA	CysSerL	sLeuThr         GCTGACC	leArgSer(          TCCGTTCT	AsnProThr(	uHisSer'         GCACAGC	laLysGlr         CAAAGCAA	GlnLeuLy: 	yCysHis]            ATGTCAC	etLeuLer           TGCTCCTC
301 1025	317	334	351 1175	367	384 1275	401	417	434	451	467	484 1575	501	517 1675	534 1725	551	567 1825	584

LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.

(first entry)

25-JAN-2000

AAZ23889

Murine LOBO cDNA fragment

Location/Qualifiers 1..1183 /\*tag= a

musculus

Mus

/product= "LOBO"

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2374
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                                                                          634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2575 TTGGGAGCCTGATGACCTTGAAGAGGAGCCAACACACAGGAGGTCATCACCA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2525 CGATCCTACAGCTTCCAGAAGGTGGGGAAGAAGCCAGAGCTCACTCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      817 lTrpGluProAspAspLeuGluGluGluProThrGlnGlnValIleThrI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  834 lePheSerLeuValAspValValLeuGlnAlaGluAlaThrAlaLeuLys
                                                                                                                                                                                                                                2375 AGCATCGGCCTCTTCTTCGCAGTTCTAGTAAAGGAGAGTGGCCCCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         801 ArgSerTyrSerPheGlnLysValGlyLysLysProGluLeuThrLeuVa
                                                                                                                                                                           CTGCAGGGGCCCTAAATAAAAGCCTGACTAAGACATTTGGAGATGACAAG
                                                                                                                                                                                                                                                                                                                                GCAGATGCCACTGTACTTCTGCTCTGGGATGCTGCAGGACCAGGAGCAGT
                                                                                                                                                                                                                                                                                                                                                                                         heArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSerPro
                                                                                                                                                                                                                                                                                                                                                                                                            2225 ATCCGCCGCTTTGCTGACGTCATAGTGCACCGCCTCCTGGCTGCTGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluGlnAlaLeuLeuArgArgHisProProProGlnThrLysMetLeuSe
                                                                          rAspLeuValGluPheCysAspGlnMetGlyLeuProMetAspValSerS
                                                                                                                1975 TGACCTGGTGGAGTTCTGTGACCAGATGGGGCTGCCCATGGATGTCAGCT
                                                                                                                                                      634 erAlaGlyAlaLeuAsnLysSerLeuThrLysThrPheGlyAspAspLys
                                                                                                                                                                                                                                                                                                             667 tGlnMetAlaLeuTyrPheCysSerGlyMetLeuGlnAspGlnGluGlnP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      701 IleArgArgPheAlaAspValIleValHisArgLeuLeuAlaAlaAlaLe
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Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -

Example 3; Page 62-64; 391pp; German

ij Wirth

Aigner T,

Hess J,

Rump A,

(ROSE/) ROSENTHAL A. Rosenthal A, WPI; 1999-601320/51. P-PSDB; AAY50352.

98DE-1013799 99WO-EP02055

27-MAR-1998;

26-MAR-1999;

WO9950284-A2

07-0CT-1999

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSerProIleA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1550 BP; 352 A; 433 C; 412 G; 353 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length: 202
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to: 1550
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          in the method of the invention.
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Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23889
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seq\_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA1999.DAT:AAZ23889

AAZ23889 standard; cDNA; 1550

seq\_documentation\_block: ID AAZ23889 standard; c XX

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LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA1999.DAT:AAZ23891
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                                                                                                                                                                                                                                                                752 leGlyLeuPhePheAlaValLeuValLysGluSerGlyProLeuGluSer 768
                                                                                                                                                                                                                                                                                                                                                  835 eSerLeuValAspValValLeuGlnAlaGluAlaThrAlaLeuLysTyrS 852
TyrSerGluGlnProAspValGluProAspThrLeuGlnLysGlnAlaAs 735
                                                                                                                                                                                                                                                  erTyrSerPheGlnLysValGlyLysLysProGluLeuThrLeuValTrp 818
                                                                                                                                                                                                                                                                                                  819 GluProAspAspLeuGluGluGluGluProThrGlnGlnValIleThrIlePh 835
                                                                                                                                                                                                                                                                                                                                                                                                  852 erAlaIleLeuLysArgProGlyLeuGluLysAlaSerAspGluGluPro 868
            785 uArgPheGlyValGlnLysArgIleTyrCysAsnAlaLeuAlaLeuArgS
                                                                                                                 825 TCGGCCTCTTCTTCGCAGTTCTAGTAAAGGAGAGTGGCCCCCTGGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wirth
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Murine LOBO genomic DNA fragment 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq_documentation_block:
ID AAZ23891 standard; DNA; 49999 BP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-601320/51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1175 GAGGAC 1180
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAZ23891;
 719
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bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA1999.DAT:AAZ23896
                                                                                                                                                                                                                                                                                                  Sequence 49999 BP; 13210 A; 11814 C; 10825 G; 14150 T; 0 other;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                490 uSerTyrAspHisAlaGlnSerMetIleGluAsnProThrGluLysIleP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8670 CACCAGGCAGTCTGAACCTGCACAGCATTGCAAAGCAACTCCGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           507 roGluGluGluLeuProProlleSerProGluHisSerValGluGluVal
                                                                                                                                                                                                                                                                                                                                                                           Length: 78
Gaps: 0
Percent identity: 100.000
useful for treating and studying bone disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Murine LOBO homologue genomic DNA fragment 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from: 1 to: 49999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540 nArgPheValAspGlyAlaLeuArgLeuAspGln 551
                                  Example 3; Page 69-97; 391pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_documentation_block:
ID AAZ23896 standard; DNA; 49999 BP.
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                                                                                                                                                                                                                                                                                                                                                                         Quality: 78.00
Ratio: 1.000
Percent Similarity: 100.000
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98DE-1013799.

Wirth T;

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or paramaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOBO; long bones; bone development; bone extension; skull; osteopathic;
                                                                                                                                                                                                                                                                                                                                                         proteins which influence bone development,
                                                                                                                                                                                                                                                                                                                                                                                  useful for treating and studying bone disorders
                                                                                                                                                                                                                                                            Hess J, Aigner T,
                                                                                                                                                                                                                                                                                                                                                                                                                              Example 3; Page 97-117; 391pp; German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_documentation_block:
ID AAZ23897 standard; DNA; 38886
                                                                                                                 99WO-EP02055
                                                                                                                                                               98DE-1013799
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality: 61.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    to: AAZ23892
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US-09-647-377-9 x AAZ23892
                                                                                                                                                                                                                                                                                                                                                         Nucleic acids encoding
                                                                                                                                                                                                                                                            Rosenthal A, Rump A,
                                                                                                                                                                                                                                                                                                          WPI; 1999-601320/51.
                                                                                                                                                                                                           (ROSE/) ROSENTHAL A.
                                                                                                                                                               27-MAR-1998;
                       WO9950284-A2
                                                                                                                 26-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_scores
                                                                  07-OCT-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA223897;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXEX DX XXX
This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoting proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or paramaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA1999.DAT:AA223892
                                                                                                                                                               Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 49999 BP; 13135 A; 11787 C; 10868 G; 14209 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10505 ATCCTTGAAGAGTGGTTGGCCGCACTATCATCCGTTCTTGCACCAACT 10554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       474 IleLeuGluGluTrpPheGlyArgThrIleIleArgSerCysThrLysLe 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    490 uSerTyrAspHisAlaGlnSerMetIleGluAsnProThrGluLysIleP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     roGluGluGluLeuProProIleSerProGluHisSerValGluGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  524 HisGlnAlaValLeuAsnLeuHisSerIleAlaLysGlnLeuArgArgGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length: 78
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10705 GCGCTTTGTAGATGCCGCACTCCGTTTAGATCAG 10738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to: 49999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540 nArgPheValAspGlyAlaLeuArgLeuAspGln 551
                                                                  Aigner T,
                                                                                                                                                                                                                                  Example 3; Page 161-189; 391pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Murine LOBO genomic DNA fragment 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAZ23892 standard; DNA; 36901 BP
                                                                     Hess J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
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Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23896
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                       (ROSE/) ROSENTHAL A.
                                                                                                                 WPI; 1999-601320/51
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Quality:
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                                                                  Rosenthal A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-JAN-2000
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seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA1999.DAT:AAZ23897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12528 CTTCCGCACCTTCCCTGAGCAGGCCCTGCTGCTGCCGCCGCATCCCCCACCAC 12577
                                                                                                                                                                                                                                                                                                                                                                      Sequence 36901 BP; 9597 A; 9409 C; 8973 G; 8922 T; 0 other;
                                                                                                                                                                                                                                                                                                                                            579 LeuValGluGluPheMetLeuLeuAlaAsnMetAlaValAlaHisLysIl 595
                                                                                                                                                                                                                                                                                                                                                                                                                                                 595 ePheArgThrPheProGluGlnAlaLeuLeuArgArgHisProProG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      612 InThrLysMetLeuSerAspLeuValGluPheCysAspGlnMetGlyLeu
                                                                                                    Length: 61
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Murine LOBO homologue genomic DNA fragment 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12628 CCCATGGATGTCAGCTCTGCAGGGGCCCTAAAT 12660
                                                                                                                                                                                                                                                                                    to: 36901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          629 ProMetAspValSerSerAlaGlyAlaLeuAsn 639
                                                                                                                                                                                                                                                                                       from: 1
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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achonical acid molecules.
                                                   LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
                                                                                                                                                                                                                                                                                                                                                                                         Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                  Murine LOBO homologue genomic DNA fragment 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 3; Page 133-161; 391pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in the method of the invention.
                                                                                                                                                                                                                                                                                                                             Hess J,
                                                                                                                                                                                                                         99WO-EP02055
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           433 yrLeuValGlnLysVal 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality: 39.00
Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23895
                                                                                                                                                                                                                                                                                                                             Rump A,
                                                                                                                                                                                                                                                                                          ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                            WPI; 1999-601320/51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_documentation_block:
                                                                                                                                                                                                                                                                                                                           Rosenthal A,
                                                                                                                                                       W09950284-A2
                                                                                                                        Mus musculus
                                                                                                                                                                                                                       26-MAR-1999;
                                                                                                                                                                                                                                                        27-MAR-1998;
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                                                                                                                                                                                      07-0CT-1999.
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   EXXXE
                                                                                                                                                                                                                                                                                                                                                                                                      This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
   transgenic animal; disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA1999.DAT:AAZ23895
                                                                                                                                                                                                                                                                                                                         bone development,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 38886 BP; 10087 A; 9920 C; 9356 G; 9523 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        628
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  595 ePheArgThrPheProGluGlnAlaLeuLeuArgArgHisProProG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    612 lnThrLysMetLeuSerAspLeuValGluPheCysAspGlnMetGlyLeu
diagnostic; pharmaceutical; gene therapy; transgenic spondyloepiphysal dysplasia; achondroplasia; murine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length: 61
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                        Wirth T;
                                                                                                                                                                                                                                                                                                                      Nucleic acids encoding proteins which influence useful for treating and studying bone disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   to: 38886
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                                                                                                                                                                                                                                                        Aigner T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      629 ProMetAspValSerSerAlaGlyAlaLeuAsn 639
                                                                                                                                                                                                                                                                                                                                                                     Example 3; Page 189-211; 391pp; German.
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ID AAZ23895 standard; DNA; 49999
                                                                                                                                                   99WO-EP02055
                                                                                                                                                                                    98DE-1013799
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Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23897
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                                                                                                                                                                                                                   (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                       WPI; 1999-601320/51.
                                                   Mus musculus
                                                                              WO9950284-A2
                                                                                                                                                                                 27-MAR-1998;
                                                                                                                                                   26-MAR-1999;
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                                                                                                               07-0CT-1999
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axex a
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Wirth

Aigner T,

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seq_name: /SIDS1/gcgdata/hold-geneseq/genesegn-emb1/NA1999.DAT:AAZ23898
Sequence 49999 BP; 14550 A; 10214 C; 10719 G; 14516 T; 0 other;
                                                                                                                                                                                                                                                                                                                             400 GlyThrPheGluValGlyValHisIleAlaAspValSerTyrPheValPr
                                                                                                                                                                                                                                                                                                                                                                                              416 oGluGlySerSerLeuAspLysValAlaAlaGluArgAlaThrSerValT
                                                                                          Length: 39
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                       to: 49999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAZ23898 standard; cDNA to mRNA; 1784 BP
                                                                                                                                                                                                                                                       from: 1
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seq_documentation_block:
                    This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a human LOBO protein described in the method of the invention.
                              osteopathic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA2001A.DAT:AAS41220
                                                                                                                                                                                                                                                                                                                       Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                                                           Location/Qualifiers
1..1454
/*tag= "Troduct="LOBO homologue"
/note= "Partial sequence, no start codon given"
                             LOBO; long bones; bone development; bone extension; skull; os diagnostic; pharmaceutical; gene therapy; transgenic animal; spondyloepiphysal dysplasia; achondroplasia; human; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63 CTGGATAAAGTGGCTGCCGAGAGGGCTACAAGCGTCTACTTGGTTCAAAA 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             162
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuAspLysValAlaAlaGluArgAlaThrSerValTyrLeuValGlnLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1784 BP; 385 A; 537 C; 504 G; 358 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length: 36
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                     Hess J, Aigner T, Wirth T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          to: 1784
                                                                                                                                                                                                                                                                                                                                                        Claim 1b; Page 211-213; 391pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from: 1
        Human LOBO homologue cDNA to mRNA
                                                                                                                                                                                                      99WO-EP02055
                                                                                                                                                                                                                           98DE-1013799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality: 36.00
Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23898
                                                                                                                                                                                                                                                                     Rosenthal A, Rump A,
                                                                                                                                                                                                                                                                                         WPI; 1999-601320/51.
                                                                                                                                                                                                                                                (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       163 ACCCCATG 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   snProMet 456
                                                                                                                                                                                                                                                                                                    P-PSDB; AAY50355
                                                                                                                                                            W09950284-A2
                                                                                                                                                                                                      26-MAR-1999;
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                                                                          sapiens
                                                                                                                                                                                   07-0CT-1999
                                                                          Ношо
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                                                                                              Key
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Human; oxidoreductase enzyme; transferase; hydrolase; lyase; isomerase; ligase; hyperproliferative disorder; immunodeficiency disorder; autoimmune disorder; neurological disorder; metabolic disorder; inflammatory disorder; cardiovascular disorder; reproductive disorder; ablood-related disorder; infectious disorder; gene therapy; cytostatic; anti arthritic; nephrotropic; anticoagulant; ss.
                                                                                                                cDNA encoding novel human enzyme polypeptide #436.
  BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-MAR-2000; 20000S-0189874.
17-MAR-2000; 2000US-0190076.
18-APR-2000; 2000US-019123.
19-MAY-2000; 2000US-0205515.
07-JUN-2000; 2000US-0209467.
28-JUN-2000; 2000US-0214886.
30-JUN-2000; 2000US-0214886.
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2000US-0216880
2000US-0217487
2000US-0218290
2000US-022829
2000US-0228618
2000US-0228618
2000US-0228618
2000US-0228618
2000US-028618
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2000US-0225757.
2000US-0225758.
2000US-0225758.
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2000US-0225267.
2000US-0225268.
AAS41220 standard; cDNA; 428
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2000US-0227009.
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2000US-0229344.
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                                                                              (first entry)
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18-AUG-2000;
22-AUG-2000;
22-AUG-2000;
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01-SEP-2000;
01-SEP-2000;
05-SEP-2000;
06-SEP-2000;
06-SEP-2000;
08-SEP-2000;
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08-SEP-2000;
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14-AUG-2000;
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30-AUG-2000;
                                                                                                                                                                                                                                                                                              Homo sapiens.
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                                                                            17-DEC-2001
                                     AAS41220;
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2000US-0231413

us-09-647-377-9.olip2n.rng

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2000US-0237040.
2000US-0239935.
2000US-0239937.
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2000US-0246527.
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2000US-0236367.
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2000US-0237038.
2000US-0237039.
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2000US-0249209.
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2000US-0241808
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2000US-0244617
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12-SEP-2000;
14-SEP-2000;
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25-SEP-2000;
25-SEP-2000;
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27-SEP-2000;
27-SEP-2000;
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29-SEP-2000;
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29-SEP-2000;
02-OCT-2000;
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08-NOV-2000;
08-NOV-2000;
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17-NOV-2000;
17-NOV-2000;
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-NOV-2000;
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The present invention relates to the isolation of novel human enzyme polypeptides (AAU22915-AAU23814), and the cDNA and genomic sequences cordding them. The enzyme polypeptides of the invention may comprise the functional classes of oxidoreductases, transferases, hydrolases, lyases, isomerases or ligases. The sequences of the invention are useful in the diagnosis, treatment, prevention and/or prognosis of a wide range of diagnosis, treatment, prevention and/or prognosis of a wide range of disorders including hyperproliferative disorders (e.g. archiritis), neurological disorders (e.g. Albsheimer's disorders (e.g. archiritis), neurological disorders (e.g. Albsheimer's disorders (e.g. archiritis), neurological disorders (e.g. Albsheimer's disorders (e.g. phenylketonuria), inflammatory disorders (e.g. asthma), cardiovascular disorders (e.g. atherosclerosis), cardiovascular disorders (e.g. infertility) and infectious disorders (e.g. influenza). The polynucleotides of the invention can also be used in gene therapy.

Note: The sequence data for this patent did not form part of the printed at free introliculation, but was obtained in electronic format directly from WIPO at free introliculation, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Novel polypeptides and polynucleotides useful for diagnosing, preventing, treating neural, immune system, muscular, reproductive, pulmonary, cardiovascular, renal, proliferative disorders and cancerous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 428 BP; 101 A; 94 C; 122 G; 106 T; 5 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length: 27
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ftp.wipo.int/pub/published_pct_sequences
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 4; SEQ ID No 446; 1180pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                93 CICTICAGAAGTICIAGAATGICTICCICAA 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      345 eSerSerGluValLeuGluCysLeuProGln 355
                                                                                                                                                                                                                                                                                                                                                                                                Rosen CA, Barash SC, Ruben SM
17-NOV-2000, 2000US-0249299.
17-NOV-2000; 2000US-0249300.
01-DEC-2000; 2000US-0250391.
05-DEC-2000; 2000US-0251030.
05-DEC-2000; 2000US-0251030.
05-DEC-2000; 2000US-0251086.
06-DEC-2000; 2000US-0251866.
08-DEC-2000; 2000US-0251866.
08-DEC-2000; 2000US-0251869.
                                                                                                                                                                                                                                                                                                                                                      (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ratio: 1.000
Percent Similarity: 100.000
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P-PSDB; AAU23350.
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seq\_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA1999.DAT:AAZ23890

osteopathic;

(first entry)

Wirth T;

Algner T,

Hess J,

99WO-EP02055. 98DE-1013799

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LOBO; long bones; bone development; bone extension; skull; osteopathi diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ds.
               seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA1999.DAT:AAZ23893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                    seq_documentation_block:
ID AAZ23893 standard; DNA; 13330 BP.
                                                                                                                                                                                Human LOBO genomic DNA fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rosenthal A, Rump A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1999-601320/51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                             WO9950284-A2.
                                                                                                                                                                                                                                                                                            sapiens
                                                                                                                                                                                                                                                                                                                                                                                                  26-MAR-1999;
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                                                                                                                                           25-JAN-2000
                                                                                                                                                                                                                                                                                                                                                              07-0CT-1999
                                                                                                         AAZ23893;
                                                                                                                                                                                                                                                                                            Homo
                                                                                          This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or paramaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the human LOBO protein described in the method of the invention.
                                                                                                                                                              LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bone development,
                                                                                                                                                                                                                                                                                                                           /product= "LOBO"
/note= "partial sequence, no start codon given"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps: 0
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wirth T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic acids encoding proteins which influence useful for treating and studying bone disorders
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 3; Page 66-67; 391pp; German.
                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    229 GCCCATCGCCGCTTTGCCGACGTC 253
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seq_documentation_block:
ID AAZ23890 standard; cDNA; 1140 BP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98DE-1013799
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                                                                                          25-JAN-2000 (first entry)
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                                                                                                                               Human LOBO cDNA fragment.
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US-09-647-377-9 x AAZ23890
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/*tag=
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P-PSDB; AAY50353.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ratio:
                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                    WO9950284-A2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_scores:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Align seg 1/1
                                                        AAZ23890;
                                                                                                                                                                                                                                                                            Key
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bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the human LOBO protein described in the method of the invention.
                                                                            This invention describes novel nucleic acids (I; designated LOBO (long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA1999.DAT:AAZ23900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 13330 BP; 2787 A; 4068 C; 3977 G; 2498 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 683 GlnPheArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSe 699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length: 25
Gaps: 0
Percent Identity: 100.000
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Example 3; Page 118-125; 391pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4063 GCCCATCGCCGCTTTGCCGACGTC 4087
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Ratio: 1.000
Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23893
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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a human LOBO protein described in the method of the invention.
                                                                                         LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA2000.DAT:AAC30796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 49999 BP; 13475 A; 10783 C; 11425 G; 14316 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             438 ValValProMetLeuProArgLeuLeuCysGluGluLeuCysSerLeuAs 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length: 19
Gaps: 0
Percent Identity: 100.000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      Aigner T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 3; Page 215-243; 391pp; German.
                                                 Human LOBO homologue genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BP.
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                                                                                                                                                                                                                                                                                                                   99WO-EP02055.
                                                                                                                                                                                                                                                                                                                                                              98DE-1013799.
       25-JAN-2000 (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         to: AAZ23899
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Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23899
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                                                                                                                                                                                                                                                                                                                                                                                                         (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1999-601320/51.
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ID AAC30796 standard;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rosenthal A,
                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                            WO9950284-A2
                                                                                                                                                                                                                                                                                                                 26-MAR-1999;
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       XEXEXEX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a human LOBO protein described in the method of the invention.
                                                                                                                                                                        LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA1999.DAT:AAZ23899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nucleic acids encoding proteins which influence bone development, useful for treating and studying bone disorders -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 49999 BP; 11432 A; 13017 C; 12505 G; 13045 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       683 GlnPheArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSe 699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length: 25
Gaps: 0
Percent Identity: 100.000
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                                                                                                                               Human LOBO homologue genomic DNA fragment 2.
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AAZ23900 standard; DNA; 49999 BP
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ID AAZ23899 standard; DNA; 49999 BP.
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                                                                                                                                                                                                                                                                                                                                                                                               99WO-EP02055.
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                                                                                     (first entry)
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Percent Similarity: 100.000
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US-09-647-377-9 x AAZ23900
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (ROSE/) ROSENTHAL A.
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AAZ23899

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Wirth T;

NAME OF COLOR OF STREET OF

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cytostatic; gene therapy; vaccine; metastasis; ss.
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2000US-0225758.
2000US-0225759.
2000US-0226279.
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2000US-0198123.
2000US-0205515.
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2000US-0227009.
2000US-0228924.
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2000US-0217496.
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2000US-0224519.
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2000US-0225266.
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                                                                                                17-JAN-2001; 2001WO-US01354
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                                                WO200157182-A2
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14-AUG-2000;
14-AUG-2000;
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14-AUG-2000;
14-AUG-2000;
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14-AUG-2000;
14-AUG-2000;
22-AUG-2000;
22-AUG-2000;
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05-SEP-2000;
05-SEP-2000;
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14-AUG-2000;
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  mRNAs encoding secreted proteins. No ORF has yet been conclusively dentified within the present sequence. The 5' ESTS were prepared from the cotal human RNAs or polyA+ RNAs derived from 30 different tissues. ESTS sequences usually correspond mainly to the 3' untranslated region (UTR) sequences usually correspond mainly to the 3' untranslated region (UTR) cof the mRNA because they are often obtained from oligo-dry primed obtained libraries. Such ESTS are not well suited for isolating cDNA sequences con a sequence obtained by the full 5' UTR is rarely included. S' ESTS are derived from mRNAs with intext 5' ends and can therefore be used to obtain full length cDNAs and genomic DNAs. 5' ESTS are also used in diagnostic, forensic, gene therapy and chromosome mapping procedures. They are used to obtain upstream regulatory sequences and to design expression and secretion vectors.
Human; 5' EST; expressed sequence tag; secreted protein; cDNA isolation; gene therapy; chromosome mapping; ss.
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                                                                                                                                                                                                                                      New nucleic acid that is a 5' expressed sequence tag (5' EST) for obtaining cDNAs and genomic DNAs that correspond to 5'ESTs and for diagnostic, forensic, gene therapy and chromosome mapping procedures
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA2001A.DAT:AAK60530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human immune/haematopoietic antigen encoding cDNA SEQ ID NO:5590.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240 ACATTTGGAGATGACAAGTACTCACTGGCCCGCAAGGAGGTGCTCACCAA 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 645 ThrPheGlyAspAspLysTyrSerLeuAlaArgLysGluValLeuThrAs
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Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 331 BP; 73 A; 112 C; 84 G; 59 T; 3 other;
                                                                                                                                                                                       Duclert A, Giordano J;
                                                                                                                                                                                                                                                                                       Claim 1; SEQ ID 34871; 71pp + CD-ROM; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        from: 1 to: 331
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ID AAK60530 standard; cDNA; 925
                                                                                                               21-FEB-2000; 2000EP-0200610.
                                                                                                                                       99US-0122487
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Ratio: 1.000
Percent Similarity: 100.000
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                                                                                                                                                                                       Dumas Milne Edwards J,
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US-09-647-377-9 x AAC30796
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                                                                                                                                                               (GEST ) GENSET.
                                     Homo sapiens.
                                                                                                                                       26-FEB-1999;
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                                                            EP1033401-A2
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                                                                                     06-SEP-2000
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us-09-647-377-9.olip2n.rng

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20000US-0246610
2000US-0246611
2000US-0249203
2000US-0249208
2000US-0249210
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2000US-0249211
2000US-0249211
2000US-0249213
2000US-0249214
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2000US-0249214
2000US-0249214
2000US-0249214
2000US-0249264
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2000US-0246475.
2000US-0246476.
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2000US-0246527.
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2000US-0244617.
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2000US-0254097.
2001US-0259678.
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2000US-0251988
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03-0CT-2000;
03-0CT-2000;
04-0CT-2000;
06-0CT-2000;
06-0C
                     26-SEP-2000;
27-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
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18-NOV-2000;
18-NO
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17-NOV-2000;
17-NOV-2000;
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08-DEC-2000;
11-DEC-2000;
05-JAN-2001;
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Align seg 1/1 to: AAK60530 from: 1 to: 925

alignment\_block: US-09-647-377-9 x AAK60530

Length: 16 Gaps: 0 Percent Identity: 100.000

Quality: 16.00 Ratio: 1.000 Percent Similarity: 100.000

alignment\_scores: Quality:

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ANTEAUSI TO AAK64702 encode the human immune/haematopoietic antigen (I) amino acid sequences given in AAM82170 to AAM91921. (I) have cytostatic activity, and can be used in gene therapy and vacchine production. (I) croteins and polynucleotides may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate (I) expression. For example, they may be used to treat disorders associated with decreased expression by rectifying mutations or deletions in a patient's genome concern the patients own productions or deletions in a patient's genome to supplement the patients own production of (I). Additionally. (I) polynucleotides may be used to produce the secreted (I), by inserting the nucleic acids into a host cell and culturing the cell to express the protein. (I) proteins and polynucleotides may be used to prevent, cancers and treat immune/haematopoietic-related diseases, especially cancers and cancer metastases of haematopoietic antigen genomic consideration the present invention. AAK84960 and AAM82169 crepresent sequences used in the exemplification of the present invention.
                                                                                                                                                                                          Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and metastasis -
                                                                                                                                                                                                                                                                                          Claim 1; SEQ ID NO 5590; 3071pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 925 BP; 216 A; 258 C; 262 G; 185 T; 4 other;
                     (HUMA-) HUMAN GENOME SCI INC
                                                                  Rosen CA, Barash SC,
                                                                                                                  WPI; 2001-483426/52.
P-PSDB; AAM87749.
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1.1 1.1 5.9 1.7 6.1e

538.97 538.97 544.04 482.08 453.99

331.50 331.50 328.50 309.00 277.00

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a murine LOBO protein described in the method of the invention.
                                                                                                                                                                                                                  LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ss.
                                                                            seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA1999.DAT:AAZ23894
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/SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA2001A.DAT:AAS42031 + /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA2001A.DAT:AAS42032 + /SIDS1/gcgdata/hold-geneseqy-emeseqn-embl/NA2001A.DAT:AAK6053 + /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA2001A.DAT:AAS46254 - /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA2000.DAT:AAS46254 - /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA2000.DAT:AAF07819 +
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Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nucleic acids encoding proteins which influence useful for treating and studying bone disorders
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                                                                                                                                                                                                                                                                                                                               /product= "LOBO homologue"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Aigner T,
                                                                                                                  BP
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                                                                                                                  AAZ23894 standard; cDNA to mRNA; 3100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 3100 BP; 783 A; 795 C; 812
                                                                                                                                                                                                                                                                                       Location/Qualifiers
125..2737
/*tag= a
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                                                                                                                                                                                             Murine LOBO homologue cDNA
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US-09-647-377-9 x AAZ23894
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P-PSDB; AAY50354.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ROSE/) ROSENTHAL A.
                                                                                                    seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rosenthal A,
                                                                                                                                                                                                                                                                                                                                                                                                          26-MAR-1999;
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                                                                                                                                                                                                                                                                    musculus
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6.2e-46
6.2e-46
4.0e-35
8.1e-35
1.1e-32
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1.5e-29
5.2e-36
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6.4e-43
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                                                      the GenCore Compugen Ltd.
                                                      Results were produced by Copyright (c) 1993-2000 C
                                                                                                                                                                                                                                                                               Query: US-09-647-377-9
Query length: 870
Database: N.Geneseq.032802:*
Database sequences: 1736436
Database length: 85845721
Search time (sec): 240.820000
                            Date: Jul 8, 2002 12:57
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1174 1174 1174 50 50 50 67 67 110 110 117 117 117 117 117 117 118 67 67 67 67 67 67 67	1 0 0 7 8 6 7 5 6
1 MetasnHisProaspTyrLysLeuAsnLeuargSerProdlyThrProar	LLysvalv           AAGGTGG eleuLys            CCTGAAA           TGTTITIC TGTTITIC ASPCYSP           GACTGTC UPPEILE           GACTGTC

10	025 TC	
3	317 ul	<b>≪</b> — €2
3	34 1 25 T	eLeuThrGluTyrGlyValAspPheSerAspPheSerSerGluValLeu 350 
3 11.	51 G    75 G	1uCysLeuProGlnSerLeuProTrpThr1leProProAspGluValG1 367 
3.	67 y  -    25 C	LysargargaspleuarglysaspCysllePheThrileAspProSerr 384 
3	384 hri 	AlaargaspieudspaspalaleudlaCysargargieuthraspGly 400 
13	01 T       25 A	hrPheGluvalGlyValHisIlealaAspvalSerTyrPheValProGl 417 
13	417 uG.	31ySerSerLeuAspLysValAlaAlaGluArgAlaThrSerValTyrL 434 
4 14	34	euvalGlnLysValValProMetLeuProArgLeuLeuCysGluGluLeu 450 
4.	51 C       75 T	ysSerLeudsnProWetThrAspLysLeuThrPheSerVall1eTrpLy 467 
1 4	467 sI    525 GC	sLeuThrProGluGlyLysIleLeuGluGluTrpPheGlyArgThrIleI 484 
4.15	84	leargSerCysThrLysLeuSerTyraspHisAlaGlnSerMetileGlu 500 
5	501 AS     625 AA	ASDProThrGluLyslleProGluGluGluLeubroProlleSerProGl 517 
5	517 uH    675 GC	iisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSerIleA 534 
5 17	34	aliysGlnLeuargArgGlnargPheValaspGlyAlaLeuargLeuasp 550 
5	51 G   75 C	InteriysteualaPheThrteuaspHisGluThrclyteuProGlnG  567 
1.8	67 YC       25 AT	ysHisIleTyrGluTyrargAspSerAsnLysLeuValGluGluDhem 584 
5.	84 et    75 TG	LeuLeulalaasnmetalavalalahisiysilePheArgThrPhePro 600 
9	01 G1	uGlnAlaLeuLeuArgArgHisProProProGlnThrLysMetLeuSe 617 

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717

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(first entry)
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Quality: 2185.50
Ratio: 4.825
Ratio: 94.770
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US-09-647-377-9 x AAZ23898
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25-JAN-2000
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1925 GAGCAGGCCCTGCTGCGCCGCCATCCCCCACACAGACGAAGATGCTCAG 1974
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                                                                                                                                                                                              2025 CIGCAGGGCCCTAAATAAAAGCCTGACTAAGACATTTGGAGATGACAAG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              684 heArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSerPro
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                                                                                                                                                                                                                                                                           651 TyrSerLeuAlaArgLysGluValLeuThrAsnMetTyrSerArgProMe
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                                                                                                         1975 TGACCTGGTGGAGTTCTGTGACCAGATGGGGCTGCCCATGGATGTCAGCT
                                                                                                                                                                 634 erAlaGlyAlaLeuAsnLysSerLeuThrLysThrPheGlyAspAspLys
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ID AAZ23898 standard; cDNA to mRNA; 1784
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AAZ23898

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes a human LOBO protein described in the method of the invention.
                                                    LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; human; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bone development,
                                                                                                                                                                                                                                    Location/Qualifiers
1..1454
/*tag= a /*troduct= "LOBO homologue"
/note= "Partial sequence, no start codon given"
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Percent Identity: 88.494
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Human LOBO homologue cDNA to mRNA
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LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease; spondyloepiphysal dysplasia; achondroplasia; murine; ds.
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.056 ACCAGTCTTTTTTGCTGTTCAAGGAGAGTGGCCCCCTGGAGTC
                                            rGluAlaMetValMetGlyValLeuAsnGlnAlaPheAspValLeuValL
                                                                                                                         SerTyrSerPheGlnLysValGlyLysLysProGluLeuThrLeuValTr
                                                                                                                                                                       pGluProAspAspLeuGluGluGluProThrGlnGlnValIleThrIleP
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1..1183
/*tag= a
/product= "LOBO"
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ID AAZ23889 standard; cDNA; 1550
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us-09-647-377-9.p2n.rng

CysAspGlnMetGlyLeuProMetAspValSerSerAlaGlyAlaLeuAs

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This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone development in mammals. The proteins of the invention reduce and/or inactivate bone extension (i.e. development), with exception of the skull and have osteopathic activity. The nucleic acid molecules, proteins and antibodies can be used in diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods and nucleic acid molecules, etc. are useful for production of transgenic animals, especially a transgenic mouse for the study of diseases associated with bone development, e.g. spondyloepiphysal dysplasia and achondroplasia. This sequence encodes the murine LOBO protein described in the method of the invention.
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                                                                                                                                                                                                                                                                                    Length: 448
Gaps: 2
Percent Identity: 86.830
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                                                                                                                                                                                                                                                                                                       Ratio: 4.999
Percent Similarity: 86.830
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US-09-647-377-9 x AAZ23889
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LOBO; long bones; bone development; bone extension; skull; osteopathic; diagnostic; pharmaceutical; gene therapy; transgenic animal; disease;
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                                                                                             .....ATGGCACTGTAC
                                                                                                                             uAsnValProLeuTyrThrHisPheThrSerProIleArgArgPheAlaA
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                              nLysSerLeuThrLysThrPheGlyAspAspLysTyrSerLeuAlaArgL
                                                H....
                                                                                                                 PheCysSerGlyMetLeuGlnAspGlnGluGlnPheArgHisTyrAlaLe
                                                                       656 ysGluValLeuThrAsnMetTyrSerArgProMetGlnMetAlaLeuTyr
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ID AAZ23890 standard; cDNA; 1140
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761

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seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA2001B.DAT:ABL11059
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pharmaceutical; gene; ss.
                                                                                                         ..........ATGGCACTGTACTTCTGCTCGGGGCTGC 164
                                                                                                                                                                                711 gLeuLeuAlaAlaAlaLeuGlyTyrSerGluGlnProAspValGluProA 728
                                                                                                                                                                                                                                                                                                                                               sGluSerGlyProLeuGluSerGluAlaMetValMetGlyValLeuAsnG 778
                                                                                                                                                                                                                                                                                                                                                                                                                    415 GGAGAGTGGCCCCCTGGAGTCAGAAGCCATGGTGATGGGCATCCTGAAGC 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CysAsnAlaLeuAlaLeuArgSerTyrSerPheGlnLysValGlyLysLy 811
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ID ABL11059 standard; cDNA; 3119
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                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic acids encoding proteins which influence bone development,
                                                                                                                                               start codon given"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        628 euProMetAspValSerSerAlaGlyAlaLeuAsnLysSerLeuThrLys 644
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Gaps: 2
Percent Identity: 75.789
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                                                                                                                      /product= "LOBO"
/note= "partial sequence,
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                                                                   Location/Qualifiers
1..784
/*tag= a
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                                                                                                                     "LOBO"
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Ratio: 4.609
Percent Similarity: 82.456
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US-09-647-377-9 x AAZ23890
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                                                                                                                                                                                                                                                                                                                      (ROSE/) ROSENTHAL A.
                                                                                                                                                                                                                                                                                                                                                                                                               P-PSDB; AAY50353
                                    Homo sapiens
                                                                                                                                                                          WO9950284-A2
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                                                                                                                                                                         167 aGlnPheAspAspSerAspSerGluAspArgHisGlyAsnThrSerGlyL 184
                                                                                                                                                                                                                                                                             184 euValAspGlyValLysLysLeuSerIleSerThrProAspArgGlyLys 200
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1326 ACATTTTGTGCGCTCCTGGGACGCTCGGAGACATGGCCACCGAGAAACG
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                                                                     151 LeuGlnGlnSerArgLySGlyTrpSerGlyProAspValIleIleGluAl
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|1004 AGAATGTCTATGCCGATGAAGTGCCC.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequences (ABL01840-ABL16175) and the encoded proteins (ABB5737-ABB72072).
The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL16176) and the encoded proteins
                                                                                                                                                                                                                                                                                                                                        New isolated nucleic acid detection reagent for detecting 1000 or more genes from Drosophila and for elucidating cell signalling and cell-cell
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   oGluAspGlnTrpLysAlaValLysProGluSerAsnAspLysGluIleG 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134 lualaThrTyrGluAlaAspIleProGluGluGlyCysGlyHisHisPro 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     claim 1; SEQ ID NO 27659; 21pp + Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               660 AGCAGCGGAGTACGTGAAATCTCTCGAGGATTTTCCACTTCTGATGGATA 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCCGCATCTCAGCATGAAGGAGCTGCTGGAAGGACTGCGCCAAAATAA 809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluThrTyrMetSerLysGluAspValSerGluGlyLeuLysArgGlyTh 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20 SerSerValValGlyProSerAlaValGlyAlaSerProGlyAsp.LysL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67 rLeuIleGlnGlyValLeuArgIleAsnProLysLysPheHisGluAlaP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ysSerLysAsnLysSerMetArgGlyLysLysLysSerIle.....Phe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seguence 3119 BP; 803 A; 805 C; 839 G; 672 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length: 861
Gaps: 23
Percent Identity: 31.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                to: 3119
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                                                                             23-MAR-2000; 2000US-191637P.
11-JUL-2000; 2000US-0614150
                              23-MAR-2001; 2001WO-US09231
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US-09-647-377-9 x ABL11059
                                                                                                                                                                                                                Adams M,
                                                                                                                                                                                                                                                          WPI; 2001-656860/75.
P-PSDB; ABB66956.
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                                                                                                                                                                                                                JC,
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1375

315

365

382

1673	TGTACTTGGTGGGCAAACGAATCGACATGGTACCCGAGTTACTCAGCTCA	1722
449	GluLeuCysSerLeuAsnProMetThrAspLysLeuThrPheSerValll:::          ::  -::               ::   AATCTCTGCTCATTGGTTGGCGGTGTTGAGCGATTCGCCTTCTCCTGCGT	465 1772
465 1773	eTrpLysLeuThrProGluGlyLysIleLeuGluGluTrpPheGlyArgT:   :::::   ::::   ::::   ::::   ::::   ::::	482 1822
482 1823	rt :: 58	498 1872
499 1873		515 1893
515 1894	rProGluHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisS :::   ::: ::::    :::AATGAATAGCCAAGTCCCTGAGAAATCTTAATC	532 1927
532 1928	erIlealalysGlnLeuArgArgGlnArgPheValAspGlyAlaLeuArg :::          :::::::   ::: GGTTGGCCAAAATACTGAAAAAGCGACGAATGGATAATGGAGCCCTTGTC	548 1977
549 1978	LeuAspGlnLeuLysLeuAlaPheThrLeuAspHisGluThrGlyLeuPr     :: :::::	565 2027
565 2028	oGlnGlyCysHisIleTyrGluTyrArgAspSerAsnLysLeuValGluG	582 2077
582 2078	LuPheWetLeuLeuAlaAsnMetAlaValAlaHisLysIlePheArgThr	598 2127
599 2128	PheProGluGlnAlaLeuLeuArgArgHisProProProGlnThrLysMe (	615 2177
615 2178	<pre>LLeuSerAspLeuValGluPheCysAspGlnMetGlyLeuProMetAspV (</pre>	632 2227
632	alSerSerAlaGlyAlaLeuAsnLysSerLeuThrLysThrPheGly ( ::::	647 2277
648 2278	AspasplysTyrSerLeualaargLysGluValLeuThrAsnMetTyrSe (	664 2318
664 2319	rargprometGlnmetAlaLeuTyrPheCysSerGlyMetLeuGlnAspG (                                      AGGCGTGTATGATGATGATGATGATGATGATGATGATGATGATG	681 2365
681 2366	InGluGlnPheArgHisTyrAlaLeuAsnValProLeuTyrThrHisPhe	697 2415
698 2416	ThrSerProlleArgArgPheAlaAspVallleValHisArgLeuLeuAl 7	714 2465
714	aAlaAlaLeuGlyTyrSerGluGlnProAspValGluP 7	/27 :508
727	roAspThrLeuGlnLysGlnAlaAspHisCysAsnAspArgArgMetAla 7 ::::::::::::    :::::::::::::::::::::	743

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The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New isolated nucleic acid detection reagent for detecting 1000 or more genes from Drosophila and for elucidating cell signalling and cell-cell interactions -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA2001B.DAT:ABL02002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila; developmental biology; cell signalling; insecticide; pharmaceutical; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophila melanogaster expressed polynucleotide SEQ ID NO 488.
                           ||| :::|||
2551 CACAAAATGGGTCAGTACGTCGGCGCATCAGTGGCCCTCAACACGCA 2600
                                                                                                     1001 TCTCTTTTCCGC.....GGCAAGGAGGAG......GATGAGGAAG 2635
                                                                                                                                                                         :::|||:::::
2686 TATGGCCTGGAAGGCACTTTGTAT.......CTAAAGTCG.. 2718
                                                                                                                                                                                                                                                                                                                              2719 ......GACAAGGATGCCAAGGACGTGTGGAGCGCTCAAGAGCGAGA 2761
                                                                                                                                                                                                                                                                                                                                                                                                  2762 TIGTCTTCACCTTCAACGAAGGATCATACACAGGGTTGCGGTGACGTG 2811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2812 GIGITCCACTCCTITGATCCAGTCAGGTTCGTCTTAGCCTGGATTCCAG 2861
744 SerLysArgValGln......GluLeuSerIleGl 753
                                                                       753 yLeuPhePheAlaValLeuValLysGluSerGlyProLeuGluSerGluA 770
                                                                                                                                               770 laMetValMetGlyValLeuAsnGlnAlaPheAspValLeuValLeuArg 786
                                                                                                                                                                                                                       787 PheGlyValGlnLysArglleTyrCysAsnAlaLeuAlaLeuArgSerTy 803
                                                                                                                                                                                                                                                                                              803 rSerPheGlnLysValGlyLys......LysProGluL 814
                                                                                                                                                                                                                                                                                                                                                                      814 euThrLeuValTrpGluProAspAspLeuGluGluGluProThrGlnGln 830
                                                                                                                                                                                                                                                                                                                                                                                                                                              831 ValileThrilePheSerLeuValAspValValLeuGlnAlaGluAlaTh 847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; SEQ ID NO 488; 21pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2862 CAATGTGCAGCACAGAAGCTGATCTTCCGG 2892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   847 rAlaLeuLysTyrSerAlaIleLeuLysArg 857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Li PWD, Myers EW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_documentation_block:
ID ABL02002 standard; cDNA; 5373 BP.
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11-JUL-2000; 2000US-0614150.
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P-PSDB; ABB57899.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABL02002;
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useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insectioides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLIG176-ABL30511), expressed DNA sequences (ABL7377-ABB20721).  The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.	t_scores: Quality: 972.50 Length: 852 Ratio: 1.918 Gaps: 27 Similarity: 59.507 Percent Identity: 31.455 t_block: 47.377-9 x ABL02002	eg 1/1 to: ABL02002 from: 1 to: 5373  GlyThrLeuIleGlnGlyValLeuArgIleAsnProLysLysPheHisGl 82     ::::::::          :::::::    GGGCGCATTGTAGAGGGAAATCCGGGTTAACCGCAAGAACACAGACA 204  UAlaPheIleProSerProAspGlyAspArgAspIlePheIleAspGlyV 99 :	GGCCTTTATAATCATGTCCACTGATCGAGAAGCACTCGAAGGAGGTGG alvalalaArgAsnargalaLeuasnGlyAspLeuV :: TCGTGCTCTTGCCAGTGGCTAGGCTATGCCTTCGATGGTGACAAAG ValValLySLeuCeuProGluAspGlnTrpLySAlaValLySPro GGTGCATTCGTGCTAAACCTGGTGGTGCTCAGGGTGTTCAAAGACGCT	uSerAsnAspLysGlutleGluAlaThrTyrGluAlaAsp   :::::                 :::::   GCCTCGTCGGGAAATCTCTGGT	ATAATACTTTCGACTGATAATATCCTATAAAGGGGATGGTGAGGA. 23 oAspValileIleGluAlaGlnPhe.AspAspSerAspSerGluAspArg 17	HisGlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIleSe	luksnThrProlleProGlnAspThrArgGlyLeuSerGluLySSerLeu 227
CC cell CC cell CC inse CC inse CC sequ CC (ABB CC Spe CC spe CC spe CC at f XXX Sequ	3 t %	Align se 66 1994 82	2044 99 2094 112 214	127 2194 144 2219	0 9 0	178 2340 194 2364	211 2377 228 2388 244

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ThrProGluGlyLys1leLeuGluGlu.....TrpPheGlyArgThrIl 483 ::: :::||| :::||| :::||| ||||||| AACGGGAAGGGAGGCACAGAAGCCAGAAATTTGCCGCACAGT 3151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3005 CAACGAGGTAATCCACATGCTCAGTCTCTATGCATGCGA...TGTT 3051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2658 CCGGTTGGCCGCGTGGGTAATTTGGATGACGAACTTAAGGCAATTCTGTT 2707
2432 GATCGTGGGAACCATATCGTTTACGAACCCAACCAAACTCTGTGACGACC 2481
                                                                                                                                                                                                                                                                                                                                                                                                      336 rGluTyrGlyVal...AspPheSerAspPheSerSerGluValLeuGluC 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    heGluValGlyValHisIleAlaAspValSerTyrPheValProGluGly 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerSerLeuAspLysValAlaAlaGluArgAlaThrSerValTyrLeuVa 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      435 IGlnLysValValProMetLeuProArgLeuLeuCysGluGluLeuCysS 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            erLeuAsnProMetThrAspLysLeuThrPheSerValIleTrpLysLeu 468
                                                                                                                                                                                                                                                                                                                                320 SerLeuGlyGlnAlaGlyGluIleGluProGluThrGluGlyIleLeuTh 336
                                    255 ysAsnSerAspLeuPheLysLysTyrAlaLeuPheSerProSerAspHis 271
                                                                                                                                                                                288 tThrArgProLys...AspPheAlaAsnThrLeuPheIleCysArgIleI 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aArgAspLeuAspAspAlaLeuAlaCysArgArgLeuThrAspGlyThrP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                elleArgSerCysThrLysLeuSerTyrAspHisAlaGlnSerMetIleG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        500 luAsnProThrGluLysIleProGluGluGluLeuProProIleSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      eAlaLysGlnLeuArgArgGlnArgPheValAspGlyAlaLeuArgLeuA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSerIl
                                                                                                          272 ArgValProArgIleTyrValProLeuLysAspCysProGlnAspPheMe
                                                                                                                                                                                                                                                          304 leaspTrpLysGluAspCysAsn...PheAlaLeuGlyGlnLeuAlaLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ysLeuProGlnSerLeuProTrpThrIleProProAspGluValGlyLys
                                                            2482 AG......CTATTCTACAAA...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  352
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550 3352 567	spGlnLeuLysLeuAlaPheThrLeuAspHisGluThrGlyLeuProGln         566           ::::
3402	
583 3452	eMetLeuLeualaasnMetalavalalaisLysilePheArgThrPheP 600 
600	roGluGlnAlaLeuLeuArgArgHisProProProGlnThrLySMeLLeu 616   :::    :::       :::
617 3552	SerAspLeuValGluPheCysAspGlnMetGlyLeuProMetAspValSe 633 :::
633 3602	rSeralaGlyAlaLeuAsnLysSerLeuThrLysThrPheGlyAspAspL 650      :::        :::::    :::::::::::::
650 3652	ysTyrSerLeuAlaArgLysGluValLeuThrAsnMetTyrSerArgPro 666 :::    ::      ::       CCAATCGTGTCGCAATGAATGCTGCTAAGTCAGCTTTTGATGAAACCA 3701
667 3702	MetGlnMetala       670                                   Argccccrccaccaccaccaccaccaccacca       3751
671 3752	LeuTyrPheCysSerGlyMetLeuGlnaspGlnGl 682 CAATTCCCCCCTTAGATATTTTGTAGCGAGGTAAATCGGAACCGGC 3801
682 3802	uGlnPheArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrS 699 
699 3852	erprolleargArgPhealaAspVallleValHisArg
712	
3902	ACCTIGGAAGTICGCCICCCGTACTIAAAATITCCICCACTCTAGACTIT 3951
713	eualaalaalaLeuGlyTyrSerGluGlnProaspValGluProaspThr 729 
730	LeuGlnLysGlnAlaAspHisCysAsnAspArgArgMetAlaSerLysAr 746     ::: :::    ::   ::   :: TTGCACACCTTAACGAATTAGCGAATGAGCGCAAGTACGAAAAA 4051
746	gvalGinGluLeuSerileGlyLeuPhePheAlaValLeuValLySGlus 763 ::::         :::   :::    GGCCGGAAGGACTCTGGTACTTGTACTTCAAAGATATGTTCACAAAA 4101
763 4102	erGlyProLeuGluserGlualaMetValMetGlyValLeuAsnGlnAla 779 :: ::::::::   :::   :::  AGCAGGGCATATACATGCGAGCTGTGGTCATTGAAATTTTCAGCATATG 4151
780 4152	PheAspValLeuValLeuArgPheGlyValGlnLysArgIleTyrCysAs 796 
796	nAlaLeuAlaLeuArgSerTyrSerPheGlnLysValG 809 ::::::::::::::::::::::::::::::::::::

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New isolated nucleic acid detection reagent for detecting 1000 or more genes from Drosophila and for elucidating cell signalling and cell-cell interactions –
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher enkaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLO1840-ABLO1840), expressed DNA (ABBS7737-ABB72072).
                                                                                                                                                                                           seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA2001B.DAT:ABL11058
                                                                                                                                                                                                                                                                                                                                         Drosophila melanogaster expressed polynucleotide SEQ ID NO 27656.
                                                                                                                                                                                                                                                                                                                                                                       Drosophila; developmental biology; cell signalling; insecticide; pharmaceutical; gene; ss.
                                                                                Claim 1; SEQ ID NO 27656; 21pp + Sequence Listing; English.
809 lyLysLysProGluLeuThrLeuValTrpGluProAspAspLeuGluGlu 825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 5347 BP; 1410 A; 1280 C; 1347 G; 1310 T; 0 other;
                                                             826 GluProThrGlnGlnValIleThrIlePheSerLeuValAspValValLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length: 916
Gaps: 28
Percent Identity: 29.476
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ID ABL11058 standard; cDNA; 5347
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11-JUL-2000; 2000US-0614150.
                                                                                                                                                                                                                                                                                                        26-MAR-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                      Drosophila melanogaster.
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1.757
57.205
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US-09-647-377-9 x ABL11058
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P-PSDB; ABB66955.
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                                                                                                                                                             4319 G 4319
                                                                                                                            842 u 842
                                                                                                                                                                                                                                                                        ABL11058;
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	36 1761	50 1811	67 1861	74 1911	8 <b>4</b> 1961	96 2011	113 2061	129 2105	146 2144	163	2144	179 2162	196 2210	213 2217	229 2222	246 2269	261 2312	277 2351	294 2377
seg 1/1 to: ABL11058 from: 1 to: 5347	20 SerSerValValGlyProSerAlaValGlyAlaSerProGlyAsp.LysL 3	36 ysSerLysAsnLysSerMetArgGlyLysLysLysSerIlePhe 5	51 GluthriyrMetSerLysGluAspValSerGluGlyLeuLysArgGlyTh 6	67 rLeulleGlnGlyValLeuArg	75IleasnProLysLysPheHisGluAlaPhe 8 :::    :::      :::::::    :::	85 IleProSerProAspGlyAspArgAsp	96 eAspGlyValValAlaArgAsnArgAlaLeuAsnGlyAspLeuValValV 1	113 alLysLeuLeuProGluAspGlnTrpLysAlaValLysProGluSerAsn 1   :::	130 AspLysGluIleGlualaThrTyrGluAlaAspIleProGluGluGlyCy 1	146 sGlyHisHisProLeuGlnGlnSerArgLysGlyTrpSerGlyProAspV	2144	163 alileileglualaglnPheAspAspSerAspSerGluAspArgHisGly		196 oAspArgGlyLysGluAspSerSerThrProValMetLysAspGluAsnT	rArgGlyLeuSerGluLysSerLeuGlnLys	230 SeralaLysValValTyrIleLeuGluLysLysHisSerargAlaAlaTh ::::::::::::::::	246 rGlyIleLeuLysLeuLeuAlaAspLysAsnSerAspLeuPheL		

294	ealaasnThrLeuPheIleCysargIleIleAspTrpLysGluAspCysA 3113	.1
31	nPheAlaLeuGlyGlnLeuAlaLySSerLeuGlyGlnAlaGlyGluIle 32 :::::                :TACCCACATGGACATTTGTGCGCTCCCTGGGACCGCTCGGAGACATG 24	72
328	LaspPheSeras 34      ccccacrccaa 25	14
344	PPheSerSerGluValLeuGluCysLeuProGlnSerLeuProTrpThrI 36:	51
361	leProProAspGluValGlyLysArgArgAspLeuArgLysAspCysIle 37' 	524
378	PheThrIleAspProSerThrAlaArgAspLeuAspAspAlaLeuAlaCy 39. :::::	94 574
394	yThrPheGluValGlyValHisIleAlaAspV 41  ::::::	11
411	alSerTyrPheValProGluGlySerSerLeuAspLysValAlaAlaGlu 42      ::   ::      TAAGTCACTTTATTCGTCCAGGAAACGCACTGGACATGGAGGCAGCGCC 27	27
428	ArgAlaThrSerValTyrLeuValGlnLysValValPr    :::   ::	44 824
444	gLeuLeuCysGluGluLeuCysSerLeuAsnProMetThrAspLysLeuT 4	61 874
461	hrPheSerVallleTrpLysLeuThrProGluGlyLysIleLeuGluGlu 47::       :::    ::::    ::::	77 924
478	TrpPheGlyArgThrIleIleArgSerCysThrLysLeuSerTyrAspHl 4	94
494	SAlaGlnSerMetIleGluAsnProThrGluLysIleProGluGluL 5 :       :::::   ::::	11
511	euProProlleSerProGluHisSerValGluGluValHisGlnAlaVal 5 :::::::::::::::::::::::::::::::::::	27 029
	LeuasnLeuHisSerIlealaLysGlnLeuargargGlnArg 5	41
541	5	41
3080	TGGGTAAGATTATATTAACACCTCGTAATCAAGTGAACTAAGGCATCCAT 3	129
542	PheValAspGlyAlaLeuArgLeuAspGlnLeuLysLeuAlaPheThr 5	57 175
558 3176	LeuAspHisGluThrGlyLeuProGlnGlyCysHisIleTyrGluTyrAr 5 :::	74

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11111 ::: ::: ::: 3326 CATCCTCGCCCTACCAATTTCGATCCGCTGGTAAAGTCTGCGCG 3375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3476 CGCATCCTCACC.....ACACGCTGTATGATGAGCAGGCAGTGTACTT 3516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3426 CACTGGACAAGTGTGTCAAGGCGGATAATCCGTACTTTAACACAATGATC 3475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3614 ATTATGGTACATCGCCTGCTGGCCGCCTCAATCGGCGCGGATAGCACCTA 3663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3699 IGTGTCATAATCTTAACTACCGCCACAAAATGGCTCAGTACGCTGGTCGC 3748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3749 GCATCAGTGGCCCTCAACACGCATCTCTTTTCCGCGGCAAGGAGGAGGA 3798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  673 eCysSerGlyMetLeuGlnAspGlnGlnGlnPheArgHisTyrAlaLeuA 690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   690 snValProLeuTyrThrHisPheThrSerProIleArgArgPheAlaAsp 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          707 ValileValHisArgLeuLeuAlaAlaAlaLeuGly.....Ty 719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           748
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         719 rSerGluGlnProAspValGluProAspThrLeuGlnLySGlnAlaAspH 736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          782 ValLeuValLeuArgPheGlyValGlnLysArgIleTyrCysAsnAlaLe 798
                         3276 TGGCCGAGCATATCGCAACGGAGTTCTCCGAGTGCGCTGTTCTGCGTCGC
gAspSerAsnLysLeuValGluGluPheMetLeuLeuAlaAsnMetAlaV
                                                                                                                                                                                                                                                                                                                                3376 CTACCAGGGCTTCCAGGTGGACATCAATTCGGGACTGGAGCTGTCGCATT
                                                                                                                                                                                                                                                                                                                                                                            641 erLeuThrLysThrPhe...GlyAspAspLysTyrSerLeuAlaArgLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        657 GluValLeuThrAsnMetTyrSerArgProMetGlnMetAlaLeuTyrPh
                                                                                         591 alAlaHisLysIlePheArgThrPheProGluGlnAlaLeuLeuArgArg
                                                                                                                                                                                        HisProProGlnThrLysMetLeuSerAspLeuValGluPheCysAs
                                                                                                                                                                                                                                                                               pGlnMetGlyLeuProMetAspValSerSerAlaGlyAlaLeuAsnLysS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                736 isCysAsnAspArgArgMetAlaSerLysArgValGln......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         762 .GluSerGlyProLeuGluSerGluAla......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              798 uAlaLeuArgSerTyrSerPheGlnLysValGlyLys.....
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        842 uGlnAlaGluAlaThrAlaLeuLysTyrSerAlaIleLeuLysArg 857
                                                                                                                                                                                                                                                                                  624
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The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention is useful in developmental biology and in elucidating cell signalling and insecticides, therapeutics and pharmaceutical drugs. The invention is insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLI6176-ABL30511), expressed DNA sequences (ABL16175) and the encoded proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New isolated nucleic acid detection reagent for detecting 1000 or more genes from Drosophila and for elucidating cell signalling and cell-cell
                                             seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA2001B.DAT:ABL02003
                                                                                                                                                                                                                              Drosophila; developmental biology; cell signalling; insecticide;
pharmaceutical; gene; ss.
                                                                                                                                                                                             Drosophila melanogaster expressed polynucleotide SEQ ID NO 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 1; SEQ ID NO 491; 21pp + Sequence Listing; English.
66 GlyThrLeuIleGlnGlyValLeuArgIleAsnProLysLysPheH1sGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           934 GGGCGCATTGTAGAAGAAGAAATCCGGGTTAACCGCAAGAACAACAGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             82 uAlaPheIleProSerProAspGlyAspArgAspIlePheIleAspGlyV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 2955 BP; 815 A; 761 C; 695 G; 684 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length: 796
Gaps: 22
Percent Identity: 30.025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            from: 1 to: 2955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Myers EW;
                                                                                                 BP
                                                                               seq_documentation_block:
ID ABL02003 standard; cDNA; 2955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Li PWD,
                                                                                                                                                                                                                                                                                                                                                                                                               23-MAR-2000; 2000US-191637P
11-JUL-2000; 2000US-0614150
                                                                                                                                                                                                                                                                                                                                                                                23-MAR-2001; 2001WO-US09231
                                                                                                                                                             26-MAR-2002 (first entry)
                                                                                                                                                                                                                                                                               Drosophila melanogaster.
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1.893
57.035
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alignment_block:
US-09-647-377-9 x ABL02003
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2001-656860/75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (PEKE ) PE CORP NY.
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9 03 111	1valalaargasnargalareudsnGlyaspLeuVal :	11108
8		。。
128 1084	rAsnAspLysGluIleGluAlaThrTyrGluAlaAspIleProGluGluG 1 ::    ::	.45 .105
145	${\tt lyCysGlyHisHisProLeuGlnGlnSerArgLysGlyTrpSerGlyPro\ 1}$	.61
1106	GT	1107
1108	spValIleIle	178
178	JyLeuValAspGlyValLysLysLeuSerIleSerr 	95 18
195	lyLysGluAspSerSerThrProValMetLysAspGlu	211 1191
_ (	leProGlnAspThrArgGlyLeuSerGluLysSerLeuGl	28
1192	AACTGCCCT	1200
228	nLysSerAlaLysValValTyrIleLeuGluLysLysHisSerArgAlaA 2 :::	245 1246
245	laThrGlyIleLeu	255 1296
256 1297	AsnSerAspLeuPheLysLysTyrAlaLeuPheSerProSerAspHisAr 2	272 1328
272 1329		289 1378
289	hrargProLysAspPheAlaAsnThrLeuPheIleCysArgIleIle ::::     ::::     ::::   ::: ACAAGCAGGAAATAGACGTGCCGGCTCTTATACCTTGCCCATATACTC	304 1428
305	ASPITPLySGluASpCySASnPheAlaLeuGlyGlnLeuAlaLySSe :::                       :::	320 1472
320	rLeuGlyGlnAlaGlyGluIleGluProGluThrGluGlyIleLeuThrG:::       ::::       ::::       :::::	337 1522
337 1523	lutyrGlyValAspPheSerAspPheSerSerGluValLeuGluCys ::         :::         :::::	352 1572
353 1573	LeuProGlnSerLeuProTrpThrIleProProAspGluValGlyLysAr 	369 1619
369	GArgAspLeuArgiysAspCysllePheThrIleAspProSerThrAlaA   :::	386

386 1670	rgAspLeuAspAspAlaLeuAlaCysArgArgLeuThrAspGlyThrPhe 	402 1719
403	GluvalGlyValHisIleAlaAspValSerTyrPheValProGluGlySe	419
419	rSerLeuAsplysValAlaAlaGluArgAlaThrSerValTyrLeuValG::::       :::        ::   rGaAcTGGATAACATAGTGAAGGAACGCTCTACGTCTATTTTAGCCA	436 1819
436	: InLysValValProMetLeuProArgLeuLeuCysGluGluLeuCysSer ::::   :::	452 1866
453	LeuAsnProMet            CTGCTCCCTGGG	469 1916
469	rProGluGlyLysileLeuGluGlu	484 1966
484 1967	leargsercysThrLysLeuSerTyrAspHisAlaGlnSerWetIleGlu   :::      :::::          TTAACTCTTGCTCGCAATTTGCTTATGAACACGCTCAAAAGATCATCGAC	500 2016
501	AsnProThrGluLys11eProGluGluGluLeuProProIleSerProGl        :::    :::::	517 2066
517 2067	v uHisSerValGluGluValHisGlnAlaValLeuAsnLeuHisSerIleA	534 2116
534	4 laLysGlnLeuArgArgGlnArgPheValAspGlyAlaLeuArgLeuAsp   :::::::    ::	550 2166
551	GlnLeulysLeualaPheThrLeuAspHisGluThrGlyLeuProGlnGl   ::	567 2216
567	7 yCysHisIleTyrGluTyrArgAspSerAsnLysLeuValGluGluPheM : ::::: :::	584 2266
584	4 etLeuLeualaAsnMetalaValalaHisLysIlePheargThrPhePro 	600 2316
601	GluGlnalaLeuLeuArgArgHisProProProGlnThrLysWetLeuSe	617 2366
617 2367	7 raspLeuValGluPheCysaspGlnMetGlyLeuProMetaspValSerS:	634 2416
634	4 erAlaGlyAlaLeuAsnLysSerLeuThrLysThrPheGlyAspAspLys  ::      :::     :::	650 2466
2467	1 TyrSerLeualaargLysGluValLeuThrasnMetTyrSerArgProMe :::    :::	667 2516
667	yrPheCysSerGlyMetLeuGlnAspGlnGluGln	684
689	heArgHisTyrAlaL	00

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seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA2001B.DAT:AAS79116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; diagnostic; genetic disorder; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations
                                                                                                                                                                       2597 CGAAATTAGCGAATGAGCGCAAGTACAATGCGAAAAAGGCCGGAGAGGAC 2646
                                  :::|||:::|||:::
                                                                                                      2547 TAAATATTGTACACCGCCTAAACGTACCCCAGATGATTTGCACACACCTTAA 2596
                                                                                                                                                                                                                                                2647 TCTGGTAACTTGTACTTCAAACGATATGTTCACAACAAGCAGGGCATATA 2696
                                                                                                                                                                                                                                                                                                                                                                                                                                                   734 laAspHisCysAsnAspArgArgMetAlaSerLysArgValGlnGluLeu 750
                                                                     717 uGlyTyrSerGluGlnProAspValGluProAspThrLeuGlnLysGlnA 734
                                                                                                                                                                                                              SerIleGlyLeuPhePheAlaValLeuValLysGluSerGlyProLeuGl 767
                                                                                                                                                                                                                                                                                                                                                        784 alLeuArgPheGlyValGlnLysArgIleTyrCysAsnAlaLeuAlaLeu 800
                                                                                                                                                                                                                                                                                 767 uSerGluAlaMetValMetGlyValLeuAsnGlnAlaPheAspValLeuV
701 IleArgArgPheAlaAspValIleValHisArgLeuLeuAlaAlaAlaLe
                                                                                                                                                                                                                                                                                                                                                                                                                              801 ArgSerTyrSerPheGlnLysVal......GlyLysLysProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     813 uLeuThrLeuValTrpGluProAspAspLeuGluGluGluProThrGlnG
                                                                                                                                                                                                                                                                                                                                                                                           2747 CTCTGGAGTCGGGC......CACGTTATAAGCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA encoding novel human diagnostic protein #14920.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2869 .....TGCAGCTGCTTTCCGTGGTCCCCATATGTCTG 2901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        830 lnValIleThrIlePheSerLeuValAspValValLeu 842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_documentation_block:
ID AAS79116 standard; cDNA; 4309 BP.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-MAR-2001; 2001WO-US08631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31-MAR-2000; 2000US-0540217.
23-AUG-2000; 2000US-0649167.
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P-PSDB; ABG14929.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200175067-A2.
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The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, polypeptide (II) sequences. (I) is useful as hybridisation probes, and purerase chain reaction (PCR) primers, oligomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags for identifying expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful for treating disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations responsible for generic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and amino acid sequences. AASS4197-AASS9454 represent novel human diagnostic coding sequences of the invention.

Note: The sequence data for this patent did not appear in the printed separation, but was obtained in electronic format directly from WIPO. It fip. wipo.int/pub/published_pct_sequences.
for genetic disorders or other traits and to assess
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93 AspIlePheIleAspGlyValValAlaArgAsnArgAlaLeuAsnGlyAs 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       643 GACATCCTAATCCAGGGATGAAGGCTCGAAACCGCTCAATTCATGGAGA 692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   109 pLeuValValValLysLeuLeuProGluAspGlnTrpLysAlaValLysP 126
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126 roGluSerAsnAspLysGluIleGluAlaThrTyrGluAlaAspIlePro 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143 GluGluGlyCysGlyHisHisProLeuGlnGlnSerArgLysGlyTrpSe 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            159 rGlyProAspValileIleGluAlaGlnPheAspAspSerAspSerGluA 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176 spArgHisGlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSer 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193 IleSerThrProAspArgGlyLysGluAspSerSerThrProValMetLy 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    209 sAspGluAsnThrProIleProGlnAspThrArgGlyLeuSerGluLysS 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4309 BP; 1450 A; 937 C; 961 G; 961 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                769 GACAAGGCTTCGGGCGAGTCCCCA.........
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .....AGTGAGCCCATGCCT.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length: 814
Gaps: 26
Percent Identity: 24.693
                                                                              Claim 1; SEQ ID No 14920; 103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 616.50
1.577
48.034 E
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_block:
US-09-647-377-9 x AAS79116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
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responsible f
biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_scores:
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erLeuGlnLysSerAlaLysValValTyrIleLeuGluLys..... 239

us-09-647-377-9.p2n.rng

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296 994	
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424	ValAlaAlaGluArgAlaThrSerValTyrLeuValGlnLysValValPr 440 
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1401	
457 1402	hraspLysLeuThrPheSerVallleTrpLysLeuThrProGluGly 472
473	LysIleLeuGluGluTrpPheGlyArgThrIleIleArgSerCysThrLy 489 :::    ::
489 1485	SLeuSerTyraspHisAlaGlnSerMetIleGluAsnProT 503
503	hrGluLysIleProGluGluGluLeuProProIleSerProGluHis 518 :::::           :::::

CFCT	TIGATGATATICCAGAATICAAAGACTIGGATGAGAAGAGCAGACAAGCC TO	
519 1585	SerValGluGluValHisGlnAlaValLeuAsnLeuHisSerIleAlaLy 5 :::::       ::        :: AGCTGGAGGAGTTGTGGGCAATTGGAAGCTGACGACATAGCTG 1	35
535	sGlnLeuArgArgGlnArgPheValAspGlyAlaLeuArgLeuAspGlnL 5:::::    :::    :::    :::     CCATGTCAGGACTAAACGAGACGATGTGGTGCCCTGGAACTGGAAGGGG 1	52
552	euLysLeuAlaPheThrLeuAspHisGluThrGlyLeuProGlnGlyCys 5 ::::::::             :: ::::: TAGAGGTTTGCGTACATGACAAAAAAAAAAAAATT	68
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1722		722
582	uLeuAlaAsnMetAlaValAlaHisLysIlePheArgThrPheProGluG 6	0.5
1723	ċ 1	.723
602	InalaLeuLeuArgArgHisProProProGlnThrLysMetLeuSerAsp 6   1   1   1   1   1   1   1   1   1	118
619	LeuValGluPheCysAspGlnMetGlyLeuProMetAspValSerSerAl 6	35
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1783	AATGCGAACGACCCCCACG 1	1801
1802	erLeuAlaArgLysGluValLeuThrAsnMetTyrSerArgProMetGln 6 :: :::::::    ::::::     :::     arccarrgraAragGcTaCrGCGTCCArGGCCACGCGCTGCTGG 1	568 1851
669	MetalaLeuTyrPheCysSerGlyMetLeuGlnAspGlnGluGlnPheAr 6	8681
685	SPheThrSerProlleA 7 	702 1948
70	rgArgPheAlaAspVallleValHisArgLeuLeuAlaAlaAlaLeuGly 7	718
4	GAAGATATTCAGATATTGTAGTACACCGCTTGTTAATGGCAGCCATTTCA 1	, ע
719	9 TyrSerGluGlnProAspValGluProAspThrLe 7 ::::::::::::::::::::::::::::::::::::	730
730	0 uGlnLysGlnAlaAspHisCysAsnAspArgArgMetAlaSerLysArgV 7	747
74	alGlnGluLeuSerIleGlyLeuPhePheAlaValLeuValLysGluSer	763
Ō	:::               :::::      :::::      :::::	2148
164	erGluAlaMetValMetGlyValLeuAsnGlnAl	67.
2149	TGCCACCGAGGAGCGTTGCATATCTGACGGAGTTATT	$\leftarrow$
177	9 aPheAspValLeuValLeuArgPheGlyValGlnLysArgIleTyrCysA 7	962
2190		2190
796	6 snAlaLeuAlaLeuArgSerTyrSerPheGlnLysValGlyLysLysPro	Η.
2191	1TATTCAATTAGAACAAATGGTAATAAA	2217

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published\_pct\_sequences.

8888888

Sequence 2944528 BP; 914202 A; 563301 C; 555061 G; 911964 T; 0 other;

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The present sequence is the genome sequence of Listeria monocytogenes EGD-e. This sequence and fragments of this sequence are useful for selecting probes and primers for detecting genes in L. monocytogenes and related organisms, and to study genetic polymorphisms and other genomes. Proteins (ABB47297-ABB50149) expressed from the present sequence useful for raising specific antibodies, identification of L. monocytogenes and related organisms, and for biosynthesis and biodegradation, especially biosynthesis of Vitamin B12. This sequence and proteins encoded by it are also useful for selecting compounds that regulate gene expression and cell replication and modulate L. monocytogenes-related diseases. In addition, this sequence and proteins encoded by it are useful in pharmaceutical and vaccines compositions for the treatment or prevention of infections by L. monocytogenes and related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Buchrieser C, Frangeul L, Couve E, Rusniok C, Fshih H, Dehoux P; Dussurget O, Chetouani F, Nedjari H, Glaser P, Kunst F, Cossart P; Daniels J, Goebel W, Kreft J, Kuhn M, Ng E, Vazquez-Beland JA; Chakraborty T, Domann E, Hain T, Berche P, Charbit A, Durant L; Perez-Marz J, Baquero F, Garcia Del Portillo F, Gomez-Lopez N; Raduenio E, De Pablos B, Wehland J, Kaerst U, Entian K, Hauf J; Rose M, Voss H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genomic sequence for Listeria monocytogenes, useful e.g. for treatment and prevention of Listeria and related bacterial infections, and related polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Antibacterial; gene therapy; vaccine; biosynthesis; biodegradation; vitamin B12; bacterial infection; disease; ds.
                                                                                                                                                                                                                                                                                                                                                         seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA2002.DAT:ABA03041
                                 2250 TCATGCACAGAGTATAGTTGCTTTTAAAGAAGATGAAGCCAGAGGACAGG 2299
                                                                                                                                                                                                                      2300 AAATTGGT...AAACATAGTGCTGTCGGCCATGTCCCTTCAGCCACAGCA 2346
813 GluLeuThrLeuValTrpGluProAspAspLeuGluGluGluProThrGl
                                                                                     829 nGlnValIleThrIlePheSerLeuValAspValValLeuGlnAlaGluA
                                                                                                                                                                           846 laThrAlaLeuLysTyrSerAlaIleLeuLysArgPro.......
                                                                                                                                                                                                                                                                                                              2347 CTGCCAACACTGACTGGTGTTGAGAGGAGGTGAAGCGGAG 2388
                                                                                                                                                                                                                                                                      Listeria monocytogenes EGD-e genome sequence.
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                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
ID ABA03041 standard; DNA; 2944528 BP.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Listeria monocytogenes.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2002-010914/01.
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252256CGCACATGAACGAGGTTTTGGCTTTGTTCTCCCAGAAGAAAAATGG 2522517
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2522187GGGCACCGCAATGACCCGGGAGTGGATATTTAATGGATAATTCATAACA 2522138
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                                                                                                                                                                                                                                                                                                                                                                                         178 sGlyAsnThrSerGlyLeuValAspGlyValLysLysLeuSerIleSerT 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     195 hrProAspArgGlyLysGluAspSerSerThrProValMetLysAspGlu 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218 ....AspThrArgGlyLeu.....SerGluLysSerLeuG 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   338 rGlyValAspPheSerAspPheSerSerGluValLeuGluCysLeuProG 355
                                                                                                                                                                                                                          Align seg 1/1 to reverse of: ABA03041 from: 1 to: 2944528
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     263 yr......AlaLeuPheSerProSerAspHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2522281CTTAAAACCAGTTGAC.....GGGCATAAAGTTATCGTTGAATTGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                            2522685....AATTTTAATGGTGAAAGCTTTAGTAAAACTG......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 233 ValValTyr.....IleLeuGluLysLysHisSerArgAlaAlaThrGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            247 yIleLeuLysLeuLeuAlaAsp...LysAsnSerAspLeuPheLysLysT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 273 Val...ProArgIleTyrValProLeuLysAspCysProGlnAspPheMe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288 tThrArgProLysAspPheAlaAsnThrLeuPheIleCysArgIleIleA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            305 spTrpLysGluAspCysAsnPheAlaLeuGlyGlnLeuAlaLysSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    322 GlyGlnAlaGlyGluIleGluProGluThrGluGlyIleLeuThrGluTy
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Gaps: 33
Percent Identity: 26.531
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                          595.00
                          Quality:
                                                                             Percent Similarity:
                                                           Ratio:
alignment_scores:
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                                                                                                                       2521218.....TCGACTGTTATGCTGCGTTCGATGCAAAGGAAGTATGACAC 2521175
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     789 ......ValGlnLysArgIleTyrCysAsnAlaLeu 798
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                                                                                                                                                                                       686 ......HisTyrAlaLeuAsnValProLeuTyrThrHisPheT 698
                                                                                                                                                                                                                                                                                                                                                                           715 AlaAlaLeuGlyTyrSerGluGlnProAspValGluProAspThrLeuGl 731
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  748 InGluLeuSerIleGlyLeuPhePheAlaValLeuValLysGluSerGly 764
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655 rgLysGluValLeuThrAsnMetTyrSerArgProMetGlnMetAlaLeu
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
ID AA223892 standard; DNA; 36901 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-JAN-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2520608AT 2520607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           870 sp 870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAZ23892;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             UX SX EX
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XX MALLING LODG GENORITC DIN LIAGRETIC Z.	\\ \tau_{\\ \tau_{\tau_{\\ \tau_{\tau_{\tau_{\\ \tau_{\tau_{\\ \tau_{\tau_{\\ \tau_{\\ \tau_{\tau_{\\ \tau_{\\ \\ \tau_{\\ \tau_{\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
	GAGGGACAGAAGCCTAAGTCTGAACACTGTCGATCCACACCCAGATGA
spondyloepiphysal dysplasia; achondroplasia; murine; ds.	
OS Mus musculus.	15791 TGGAAGCTTTAGTGAGACTTATTGCAAGCGCGGGACCATATATGGTCCCA 15840
XX PN W09950284-A2.	716 716
XX PD 07-0CT-1999,	15841 GAGCCTTGCCTCAGCACACACGTCCTTATCCCCATACTAGCAACCCTG 15890
XX PF 26-MAR-1999; 99WO-EP02055. **	
AA PR 27-MAR-1998; 98DE-1013799. **	GTCGCCCTCTCCTCCAGGCTACAGTGAACAGCCAGATGTGGAGCCTGATA
AA PA (ROSE/) ROSENTHAL A. ***	729 hrLeuGlnLysGlnAlaAspHisCysAsnAspArgArgMetAlaSerLys 745
AA PI Rosenthal A, Rump A, Hess J, Aigner T, Wirth T;	15941 CCCTACAGAAGCAAGCTGACCACTGCAATGACCGTCGCATGGCTTCCAAA 15990
XX DR WPI; 1999-601320/51. XX	ArgValGlnGluLeuSerIleGlyLeuPhePheAlaValLeuVal.Lys. 761
PT Nucleic acids encoding proteins which influence bone development, PT useful for treating and studying bone disorders -	15991 CGTGTGCAGGAGCTCAGCATCGGCCTCTTCGCAGTTCTAGTAAAGGT 16040
XX PS Example 3; Page 97-117; 391pp; German.	тепсетсеватея
This invention describes novel nucleic acid	
bones)) encoung proteins influencing bone develops proteins of the invention reduce and/or inativate development in the contraction of the contrac	ATGGAGCACCAGTGCAGGTCCTCCGGGAGGATGCCACGATGCATTGTT
CC diagnostic or pharmaceutical compounds e.g. for gene therapy. The methods cC and nucleic acid molecules, etc. are useful for production of transgenic or animals, especially a transgenic mouse for the study of diseases.	16141 CCTACAGGAGTGGCCCCTGGAGTCCGAGGCGTGATGGCTGTGTGTTTTTTTT
CC associated with bone development, e.g. spondyloepiphysal dysplasia and CC achondroplasia. This sequence encodes the murine LOBO protein described CC in the method of the invention.	776 euAsnGlnAlaPheAspValLeuValLeuArgPheGlyValGlnLySArg 792 
AA SQ Sequence 36901 BP; 9597 A; 9409 C; 8973 G; 8922 T; 0 other;	
Length:	
: 2.813 : 22.406 Percent Id	DGCD & & D D D C D D & D D C D D D D D C D D D D
,	
US-09-647-377-9 x AAZ23892	
Align seg 1/1 to: AA223892 from: 1 to: 36901	16341 AATATTCCCCTGGTCCAGAATATCCCATGATAGTTTCACAGGTGTAAATG 16390
667 MetGlnMetAlaLeuTyrPheCysSerGlyMetLeuGlnAspGlnGluGl 683	962 796
:::	16391 GTGGGATTCAACTGAGCTCCCTTCTGTCCCTGGCCATTAGCTATGCAGGG 16440
683 nPheArgHisTyrAlaLeuAsnValProLeuTyrThrHisPheThrSerP 700	962 962
	16441 CCCACAGACTGCATCCTATAGCAGTGAGTTTCACTGGCATGTGGCAAGAA 16490
700 rolleArgArgPheAlaAspVallleValHisArgLeuLeuAlaAlaAla 716	
15591 CCATCCGCCGCTTGCTGACGTCATAGTGCACCGCCTCCTGGCTGCTGCT 15640	16491 AGGTCCAGACCCCTGAACCCAAGTAGGCCTGCCCAGGACAGGGCCTCAG 16540
716 716	796 796
15641 CTGGGTAAGGGACATGACTCTGGCAAGACCTTTGCTGGTCGAGAG 15690	16541 GCCAAGGGTCAAGTCTGAACTCTTCCTTAAAAGCCCAGGCACTCAGAACA 16590
716 716	
15691 TTACCCACTCTCAGAGTAAGTGACCACATTACTGTTATCATGGACATGCC 15740	16591 TAACCAGGATGGCAGGGTGTGGGACCTGTGATGTTGTTATAGAAACATGC 16640
716	796 796

16641	AGAAGGGGAGGCCAGAGGGTAGCCAGCACTGTGTGTGTCCCC	16690
196		962
16691	AAACAGAAACAAGGGCCCATCCTGCCTTGGCTTCTTCCCTGGATGACAG	16740
196		962
16741	TITATICAAAGTCCTCTIGGIGCCTICTGIAAIGICACTIGGGGGGGCTTI	16790
196		796
16791	GCTTTAGCTGCTCTGTGGTCACCAAGTCACCACCTGGCTCCTACCCCTGG	16840
196		962
16841	CTTTGAACTTCTTACATACACTTGGGGAAGTGTGGAACCCTGCACTGGAA	16890
196		962
16891	GAGACACAGGATTCATGAAAGAGGCAGAAACAGGAAAGGGCCAAGTGCAGC	16940
196		796
16941	TGGAACTACCAGACACCTGTAGTTACCTGGCTCTCAGCCTGTGGTGGTCAGG	16990
196		796
16991	TCTATCACCAACAGCCTAGGCAGATCTCTTCTCTTTGCTACAGTCACCAC	17040
796		796
17041	CCTCCCACATTGTCCCTTGGAATTGGGTCACCTTCAGGTTCTACTTTGAC	17090
796		796
17091	CAAAGGTGACTTAGCAGAACCTCCTAAATCTGGCTGAGGTGGACCAAGGA	17140
196		962
17141	TAGGGGGCTGGGGGATGTCTCTGTCCAAGCAGGCAGCTACAGTAAGGCAG	17190
196		962
17191	CCGGTACAAAGCTCCCTCCAGCCAGTCAGAAATAGGCAGGC	17240
196		796
17241	GAGGTGTCTGAAGCCCATAGCCTGAGGCTCCGGTGTGTCCCCCTGCCCCC	17290
797	AlaLeuAlaLeuArgSerTyrSerPheGlnLysValGlyLysLysPro	812 17340
813	GluLeuThrLeuValTrpGluProAspAspLeuGluGluGluGluProThrGl 	829
82		7
17391	:::   GCAGGTCAGTCCCTGCTGTGTCCCTAAGCCTACCTCTGTCTCAAACGTG	17440
832		832
17441	. TGCCCCTAGGICCTCATCTGCCCTCATTTCTCCCCCAGCACCATAGGTTCC	17490
832		832
17491	. CCTGTGGGATTCCACCAAGCCCTGGCTTAGACTGCCAGGTTCTATATGGG	17540
832		832
17541	AACACCACTATGGCAGTGGTTCTCAACCTTGATGCAGCGACCCTTA	17590

	832	~	832
,	17591 ACACAGTICCICAIGCIGIGGACACCCIICCCCCAGCCAITAAAITAT		17640
	832		832
,	17641 TTTCGTTGCTACTTCATAACTATAGTTTGCTGCTGTTATAAATCAAATG		17690
	832		832
	17691 TAAATATTTTGGAGATAGAGGCAAAGGGTCTCGAACGACAGGTTGGGGA		17740
	832		832
	17741 CTGCTGCTCTATAGGTAGATAGGTGCTATTCCTCTCCCCTGAACAGAACT		17790
	832		832
	17791 ITTCAGAAATTTTGAGAAGCTGATAAAAGCTTCTTTTATCCCTCTTGTTC		17840
	832		832
	17841 CAAAGGCTGGCCCAGCCCAGCTCGGCCCGGCCCAGCCTGTTTCTTGCTC		17890
	832	:	832
	17891 CTCGTGAATGGTCACTGAATAACAAATGTCTACATAGTGCCATTTAGCCT		17940
	832		832
	17941 ACTGGTTTTCCCCAGACCCAATGAATCCCATTTACAGATAGGCGATAGAG		17990
	832		832
	17991 GCTCGGGAAGTTAAGTGAGCCTCAGTGGTCAGTTGGGTTTGATTGCAGGC		18040
	833	4T	833
	18041 CCTCACCTGCCCTGTCCTCCTGTTCCTGGCTCTGCTACAGGTCATCAC		18090
	833 rIlePheSerLeuValAspValValLeuGlnAlaGluAlaThrAlaLeuL 		850 18140
	850 ystyrSeralaileLeuLysargProGlyLeuGluLysalaSeraspGlu 		866 18190
	867 GluproGluasp 870               18191 GAGCTGAGGAC 18202		
seď	Lname: /SIDS1/gcgdata/hold-geneseq/geneseqn-embl/NA1999	1/geneseqn-embl/NA1999.D	.DAT:AAZ23897
seq ID	_documentation_block: AAZ23897 standard; DNA; 38886 BP	å	
Y X	AAZ23897;		
X E S	25-JAN-2000 (first entry)		
S E S	Murine LOBO homologue genomic DNA	NA fragment 3.	
K K K K K K K K K K K K K K K K K K K	LOBO; long bones; bone developme diagnostic; pharmaceutical; gene spondyloepiphysal dysplasia; acl	development; bone extension; sku cal; gene therapy; transgenic an asia; achondroplasia; murine; ds	skull; osteopathic; ; animal; disease; ; ds.
SO X	Mus musculus.		
N A	WO9950284-A2.		
4 G	07-0CT-1999		

746 ArgvaldIndlu 746 ArgvaldIndlu 17975 CGTGTGCAGGAG 761	18275 AGGCAAACCAA. 796	796	796	796
PPI Rosenthal A, Rump A, Hess J, Aigner T, Wirth T;  XX XX XX XX XX XX WPI: 1999-601320/51.  XX Nucleic acids encoding proteins which influence bone development, PT useful for treating and studying bone disorders - XX Example 3; Page 189-211; 391pp; German. XX C This invention describes novel nucleic acids (I; designated LOBO (long bones)) encoding proteins influencing bone extension (i.e. concer) encoding proteins influencing bone extension (i.e. concer) encoding proteins influencing bone extension (i.e. concer) encoding proteins influencing and antibodies can be used in concernation of the skull and have osteopathic activity. XX C This invention reduce and/or inactivate bone extension (i.e. concernation) with exception of the skull and have osteopathic activity. XX C The nucleic acid molecules, proteins and antibodies can be used in confinence acid molecules, etc. are useful for production of transgenic annhals, especially a transgenic mouse for the study of diseases C annhals, especially a transgenic mouse for the study of diseases C annhals, especially a transgenic mouse for the study of diseases C achondroplasta. This sequence encodes the murine LOBO protein described XX S sequence 38886 BP; 10087 A; 9920 C; 9356 G; 9523 T; 0 other; Quality: 571.00 Length: 906	Percent Similarity: 22.406 Percent Identity: 22.075 alignment_block: US-09-647-377-9 x AAZ23897 Align seg 1/1 to: AAZ23897 from: 1 to: 38886	D. FALZ3097 ILUN: 1  NMCTALALCUTYPHCCYSSEGIY		TTACCCACTCTCAGAGTAAGTGACCACATTACTGTTATCATGGACATGCC GAGGGACAGAGAGCCTAAGTCTGAACACTGTCGATCCACACCCAGATGA TGGAAGCTTTAGTGAGACTTATTGCAAGCGGGGACCATATATGGTCCCA

96		196
- α	TTTATTCAAAGICCTCTTGGTGCCTTCTGTAATGTCACTTGGGGGGGTTT	18725
9		796
796 18724	AAACAGAAACAAGAGCCCATCCTGCCTTGGCTTCTTCCTGGATGACAG	18675
18674	AGAAGGGAGGCCAGAGGGTAGCCAGCACTGCTCTGGACACTGTGTCCCC	0 0
962		
18624	TAACCAGGATGGCAGGGTGTGGGACCTGTGATGTT	18575
962		196
18574	GCCAAGGGTCAAGTCTGAACTCTTCCTTAAAAGCC	18525
962		196
18524	AGGGTCCAGACCCCTGAACCCAAGTAGGCCTGCCCAGGACAGGGCCTCAG	18475
962		196
18474	CCCACAGACTGCATCCTATAGCAGTGAGTTTCACTGGCATGTGGCAAGAA	18425
962		962
18424	GIGGGATTCAACTGAGCTCCCTTCTGTCCCTGGCCATTAGCTATGCAGGG	18375
962		196
18374	AATATTCCCCTGGTCCAGAATATCCCATGATAGTTTCACAGGTGTAAATG	18325
962		196
18324	AGGCAAAACCAAACCCATTTTCCCG	18275
964		796
18274		N
2		i
792	6 euAsnGlnAlaPheAspValLeuValLeuArgPheGlyValGlnLysArg	176
776 18174	2GluSerGlyProLeuGluSerGluAlaMetValMetGlyValL 	762 18125
18124	CAGTGCAGGTCCTCCCTGGGAGGATGCCACGATGCA	18075
761		761
18074	TGTCCAGCCTGGCCCCTTCTTCCCCCTTTCCCTGTCCTCCGAT	18025
761		761
761	6 ArgyalGlnGluLeuSerIleClyLeuPhePheAlaValLeuVal.Lys. 	746
745	9 hrLeuGlnLysGlnAlaAspHisCysAsnAspArgArgMetAlaSerLys	729 17925
729	7LeuGlyTyrSerGluGlnProAspValGluProAspT 	717

18775	GCTTTAGCTGCTCTGTGGTCACCAAGTCACCACCTGGCTCCTACCCCTGG	18824
196		962
18825	CTTTGAACTTCTTACATACACTTGGGGAAGTGTGGAACCCTGCACTGGAA	18874
196		962
18875	GAGACACAGGATTCATGAAAGAGGCAGAAACAGGAAAGGGCCAAGTGCAGC	18924
196		962
18925	TGGAACTACCAGACACCTGTAGTTACCTGGCTCTCAGCCTGGTGGTCAGG	18974
796		796
18975	TCTATCACCAACAGCCTAGGCAGATCTCTTCTTTTGCTACAGTCACCAC	19024
196		796
19025	CCTCCCACATTGTCCCTTGGAATTGGGTCACCTTCAGGTTCTACTTTGAC	19074
196		196
19075	CAAAGGTGACTTAGCAGAACCTCCTAAATCTGGCTGAGGTGGACCAAGGA	19124
196		962
19125	TAGGGGGCTGGGGATGTCTCTGTCCAAGCAGGCAGCTACAGTAAGGCAG	19174
196		962
19175	CCGGTACAAAGCTCCCTCCAGCCAGTCAGAAATAGGCAGGC	19224
796		796
19225	GAGGTGTCTGAAGCCCATAGCCTGAGGCTCCGGTGTGTCCCCCTGCCCCC	19274
797 19275	AlaLeuAlaLeuArgSerTyrSerPheGlnLysValGlyLysLysPro 	812 19324
813	GluLeuThrLeuValTrpGluProAspAspLeuGluGluGluBluPoThrGl 	829 19374
829	nG	832
19375	:::   GCAGGICAGICCCCIGCIGIGICCCIAAGCCIACCICIGICICAAACGIG	19424
832		832
19425	TGCCCCTAGGTCCTCATCTGCCCTCATTTCTCCCCAGCACCATAGGTTCC	19474
832		832
19475	CCTGTGGGGATTCCACCAAGCCCTGGCTTAGACTGCCAGGTTCTATATGGG	19524
832		832
19525	3 AACACCCACTATGGCAGTGGTTCTCAACCTTCCTGATGCAGCGACCCTTA	19574
832		832
19575	S ACACAGTICCICAIGCIGIGGIGACACCCTICCCCCAGCCAITAAAITAI	19624
832		832
19625	i titcgtigctacticataactataagtitgctgctgttataaatcaaatg	19674
832		832

1967	5 TAAATATTTTGGAGATAGAGGCAAAGGGTCTCGAACGACAGGTTGGGG	9724
xó i		
1972	5 CIGCIGCICIATAGGIAGATAGGIGCIAIICCICICCCCCGAACAGAACI	19774
83.		832
19775	TTTCAGAAATTTTGAGAAGCTGATAAAAGCTTCTTTTATCCCTCTTGTTC	19824
83.	2	832
1982	5 CAAAGGCTGGCCCAGCCCAGCTCGGCCCGGCCCAGCCTGTTTTTTTGCTC	19874
80	32	832
1987	5 CTCGTGAATGGTCACTGAATAACAAATGTCTACATAGTGCCATTTAGCCT	19924
	32	832
1993	25 ACTEGITTTCCCCAGACCCAATGAATCCCATTTACAGATAGGCGATAGAG	19974
80	32	832
1997	75 GCTCGGGAAGTTAAGTGAGCCTCAGTGGTCAGTTGGCTTTGATTGCAGGC	20024
833	The state of the s	833 20074
833	rilePheSerLeuValAspValValLeuGlnAlaGluAlaThrAlaLeuL 	850 20124
850 2012	) ysfyrSeralaileLeuLysArgProGlyLeuGluLysAlaSerAspGlu 	866 20174
86.	867 Glubrogluasp 870 	
sed_na	name: /SIDS1/gcgdata/hold-geneseg/genesegn-embl/NA2001A.DAT	DAT: AAH53049
seg_do ID A	documentation_block: AAH53049 standard; DNA; 2379 BP.	
	ААН53049;	
	03-SEP-2001 (first entry)	
DE S	. epidermidis open reading frame nucleotide sequence	SEQ ID NO:1491.
KW KW	Staphylococcus epidermidis SR1 strain; infection; diagnos vaccination; endocarditis; ds.	osis;
	Staphylococcus epidermidis.	•
	WO200134809-A2.	
	17-MAY-2001.	
	09-NOV-2000; 2000WO-US30782.	
	09-NOV-1999; 99US-0164258.	
	(GLAX ) GLAXO GROUP LTD.	
	Kimmerly WJ;	
	WPI; 2001-316495/33. P-PSDB; AAG82199.	
•		

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348
                                                                                                                                                                   AAA AAH53304 to AAH53970 represent nucleic acids (I) encoding polypeptides (II), given in AAG81454 to AAG83120, from Staphylococcus epidermidis.

(II) and (II) can have antibacterial activity and therefore can be used in vaccination. The nucleic acids (I) may be used to produce the used to roduce the used to produce the production of vectors so the polypeptides (II) via the production of vectors containing them which are used to produce hosts cells which express the polypeptides. The polypeptides (II) (and/or nucleic acids) may then be used to vaccinate subjects and to raise antibodies against the bacteria. The polypeptides may also be used to assay for other inhibitors of their activity and therefore identify compounds that may be used for the treatment of S. epidermidis infections, e.g. endocarditis AAH53971 to AAH5509 represent specifically claimed S. epidermidis genomic DNA polymucleotide sequences from the present invention. AAH55091 to CA AH5509 represent oligonucleotide sequences and primers which are used to the present invention.

N.B. The present invention of the present invention.

N.B. The present invention specifically claims all the polynucleotide sequence siven in the sequence listing of the present specification, convent the sequence listing only goes up to SEQ ID NO:4454 so even though sequences are pirewin the Adschource to A464.
Nucleic acids encoding polypeptides from Staphylococcus epidermidis, useful for vaccinating against infections, e.g. endocarditis -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       :::||||||:::
57 GTCAGTATCTGACTTT......CAAGATGCGTTAGGTTAAACAGTGCCG 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 AC......TCATTTAGAGATTTAAAATACTCGTT 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87 SerProAspGlyAspArgAspIlePheIleAspGlyValValAlaArgAs 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120 lnTrpLysAlaValLysProGluSerAsnAspLysGluIleGluAlaThr 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nArgAlaLeuAsnGlyAspLeuValValValLysLeuLeuProGluAspG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34 spLysLysSerLysAsnLysSerMetArgGlyLysLysLysSerIlePhe 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MetAsnHisProAspTyrLysLeuAsnLeuArgSerProGlyThrProAr 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51 Glu.....Thrigine 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      54 tSerLysGluAspValSerGluGlyLeuLysArgGlyThrLeuIleGlnG 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  71 lyValLeuArgIleAsnProLysLysPheHisGluAlaPheIle...Pro 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17 gGlyValSerSerValValGlyProSerAlaValGlyAlaSerProGlyA 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 268 GAAGATGACGAGGATGGATGTTTTTTTTTTCCACCAACTAAAATC...AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          315 TAGAGCATTAGATGGAGATACTGTCATCGTGGAA......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 2379 BP; 900 A; 365 C; 465 G; 649 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length: 817
Gaps: 30
Percent Identity: 24,969
                                                                                                             Claim 8; Page 421-422; 2188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Align seg 1/1 to: AAH53049 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                568.00
1.365
50.918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_block:
US-09-647-377-9 x AAH53049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality:
Ratio:
Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_scores:
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137	TyrGluAlaAspIleProGluGluGlyCysGlyHisHisProLeuGlnGl	153
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153	nSerArgLysGlyTrpSerGlyProAspValIleIleGluAlaGlnPheA	170
357	CTCG	363
170	uAspArgHisGlyAsnThrSerGly ::::::    :::::	
		393
400	G1YVALLYSLUYSLUYSETTIESERTINEPROASPAIGGIYLYSGIUASPSE	203
203	ProValMetLysAspGluAsnThrP	214
421	  GTATAGCGAAGCATTTTGGTTTCG	466
214	LeuSerGluLysSerLeuGlnLysSer	ന്
9	TACCEGATGACAAACGTATTATGCAAGAT	4 9 X
231 499	AlaLysValvYTVTYTIeLeduGluLysLysHisSerArgAlaAlaThrG1:	247 539
247	snSerAspLeuPheLysLysTyrA	264
540	E	540
264	ProArgileTyrValProLeu	280
541	TA	549
281	LysAspCysProGlnAspPheMetThrArgProLysAspPheAlaAsnTh :	297
549		549
297	rLeuPhelleCysArglleIleAspTrpLysGluAspCysAsnPheAlaL	314
550	TAGTACAAATTACGAAGTATGCCGATAGTACTGACAATCCAG	592
314	euGlyGlnLeuAlaLysSerLeuGlyGlnAlaGlyGlulleGluProGlu :	330
331	/IleLeuThrGluTyrGlyValAspPheSerAspPheSerSe	347
643	CCAGA	689
347	euProGlnSerLeuProTrpThrIleProProA	
069	GATGTATTACAAGAAGCTGAAGAAGTACCGGATGTAATAGAACCAT	736
364	spGluValGlyLysArgargAspLeuArgLysAspCysIlePheThrIle 3 ::    :: CTGAAATCGAAGGGGTGGTTTAAGAGATGAATTAACAATCACTATA 7	380
381	AspProSerThrAlaArgAspLeuAspAspAlaLeuAlaCysArgArgLe 3     :::     :::	397
397	uThrAspGlyThrPheGluValGlyValHisIleAlaAspValSerTyrP	414
. 4	IProGluGlySerSerLeuAspLysValAlaAlaGluArgAlaThr	് ന
887	::	36

431	ServalTyrLeuvalGlnLysvalValProWetLeuProArgLeuLeuCy 447	7
447	sGluGluLeuCysSerLeuAsnProMetThrAspLysLeuThrPheSerV 464 ::: :::	4 36
464	aliletrpLysLeuThrProGluGlyLysIleLeuGluGluTrpPheGly 480 :::::::::::::::::::::::::::::::::::	0
481	ArgThrileIleArgSerCysThrLysLeuSerTyrAspHisAlaGlnSe 497	7 36
497	<pre>rMetIleGluAsnProThrGluLysIleProGluGluGluLeuP 51: ::::    :::</pre>	2 86
512 1187	roproIleSerProGluHisSerValGluGluValHisGln 52:     :: ::    :: ::     cacctatgttagatttagcgcaagatttafcaaatagattaattcat 12:	33
526 1234	AlaValLeuAsnLeuHisSerIleAlaLysGlnLeuArgArgGlnArgPh 54:	2 4 8
542	alAspGlyAlaLeuArgLeuAspGlnLeuLySLeuAlaPheThrLeuA 55	6 88 88
559	HisGluThrGlyLeuProGlnGlyCysHisIleTyrGluTyrArgAsp 57/ :::::      :::    AATGACGAAGGTATTCCAACAGAAGTGCTAATGAGAGAACGTGGCGAA 13	38
576 1339	SerasnLysLeuvalGluGluPheMetLeuLeuAlaasnMetAlavalal 59 ::::::::   :::   :::	88
592 1389	aHisLysIlePheArgThrPheProGluGlnAlaLeuLeuArgArgHisP 60	9 35
609	roProProGlnThrLysMetLeuSerAspLeuValGluPheCysAspGln 62	8 85
626	MetGlyLeuProMetAspValSerSerAlaGlyAlaLeuAsnLysSerLe 64 :::   ::: TTCGGTATTAT 14	2 96
642 1497	uThrLysThrPheGlyAspAspLysTyrSerLeuAlaArgLy:	. 94
659 1547	euThrAsnMetTyrSerArgProMetGlnMetAlaLeuTyrPheCysSer 67 ::::: :::              ::::: AAGAAGAAGTTGAAGGTAGACCAGAACAAATGGTTATTTCAACG 15	5
676 1591	GlyMetLeuGlnAspGlnGluGlnPheAr 68:	5.40
685 1641	gHisTyralaLeuAsnValProLeuTyrThrHisPheThrSerProIleA 70:	290
702	rgargPhealaaspValileValHisArgLeuLeualaalaalaLeuGly 71      ::	8.40

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AAH52304 to AAH53970 represent nucleic acids (I) encoding polypeptides (II), given in AAG81160, from Staphylococcus epidermidis.

(I) and (II) can have antibacterial activity and therefore can be used in vaccination. The nucleic acids (I) may be used to produce the Sepidermidis polypeptides (II) via the production of vectors containing them which are used to produce hosts cells which express the polypeptides. The polypeptides (II) (and/or nucleic acids) may then be used to vaccinate subjects and to raise antibodies against the bacteria. The polypeptides may also be used to assay for other inhibitors of their activity and therefore identify compounds that may be used for the treatment of S. epidermidis infections, e.g. endocarditis. AAH53971 to AH55090 represent specifically claimed S. epidermidis genomic DNA polynuclectide sequences from the present invention. AH55091 to AAH55090 represent oligonuclectide sequences and primers which are used in the exemplification of the present invention. AH55091 to AAH55091 to the present invention specifically claims all the polynuclectide sequences given in the sequence listing of the present specification, however the sequence listing only goes up to SEQ ID NO:4454 so even
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nucleic acids encoding polypeptides from Staphylococcus epidermidis, useful for vaccinating against infections, e.g. endocarditis \cdot
                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_name: /SIDS1/gcgdata/hold-geneseq/geneseqn-emb1/NA2001A.DAT:AAH54223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S. epidermidis genomic polynucleotide sequence SEQ ID NO:3587.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Staphylococcus epidermidis SR1 strain; infection; diagnosis; vaccination; endocarditis; ds.
                        .791 AGAATTAGCTGAGCACATCACAACGTGAACGCCGTGCCATTGAAGCCG 1840
                                                                                                                                                                                                                                                                                                      :::::: ||| ||| |||::::::: :::||| || ||
1882 CAACATATIGGIGAT...GAATITGAAGGIATCATIAGCICGGIIGCIAA 1928
                                                                                                                                                                                                                              .841 AACGTGATACTGATGAATTGAAAAAGCTGAGTAT.....ATGATT 1881
                                                                                           731 nLysGlnAlaAspHisCysAsnAspArgArgMet......AlaS 744
                                                                                                                                                                                  744 erLysArgValGlnGluLeuSerIleGlyLeuPhePheAlaValLeuVal 760
                                                                                                                                                                                                                                                                             761 LysGluSerGlyProLeuGluSerGluAlaMetValMetGlyValLeuAs 777
719 TyrSerGluGlnProAspValGlu.....ProAspThrLeuGl 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 8; Page 1177-1178; 2188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq_documentation_block:
ID AAH54223 standard; DNA; 3111 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0164258.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-NOV-2000; 2000WO-US30782.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Staphylococcus epidermidis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-SEP-2001 (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-316495/33.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kimmerly WJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-MAY-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                1929 T 1929
                                                                                                                                                                                                                                                                                                                                                                    777 n 777
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are given in the disclosure for SEQ ID NO:4465 to 4472,	); 1146 A; 485 C; 622 G; 858 T; 0 other; :::::   ::	567.00 Length: 814 250 1.373 Gaps: 30 50.737 Percent Identity: 25.061 503	H54223 267 erProSerAspHis	3 from: 1 to: 3111	ProdspTyrLysLeuAsnLeuArgSerProGlyThrProArgGlyValSe         20					74 rglleAsnProLysLysPheHisGluAlaPheIleProSerProAsp 89 11	90 GlyaspArgAspIlePheIleAspGlyValValValAlaArgAsnArgAlaLe 106			311	326	173 450	173 450 326 959	173     450       326     959       189     467       371     1009	173     450       326     959       189     467       371     1009       206     484       388     1059	173 326 326 189 189 371 206 1009 AA 388 217 388 500 UA
CC though sequences are given in th CC no sequences are present for SEQ	Sequence 3111 BP; 1146 A; 485		alignment_block: US-09-647-377-9 x AAH54223	e	4 ProAspTyrLysLeuAsnLeuArgSerP 	20 rSerValValGlyProSerAlaValGly  :::   :::    29 TGACTTTCAAGATGCGTTAAGT	37 erLysAsnLysSerMetArgGlyLysLy    :::    66TCATTTAGRAATTTAAT	52	57 uAspValSerGluGlyLeuLysArgGly :::: :::     155 ATCCAACAAATCCAAATTCAAAA	74 rgIleAsnProLysLysPheHisGluAl                   18 196 GTCAAAAAAAAGGCTTTGC	90 GlyaspargaspilePheileaspGlyV            240 GaGaTGATATTTTTATTCCACCAA	106 uAsnGlyAspLeuValValValLysLeu:    -::              ::   :: 287 AGANGGARNACTGCTCALCGTGGAA	123 laValLysProGluSerAsnAspLysGl	311140 AspileProGluGluGlyCysGlyHisH	312		326			

234 ValfyrileLeuGlubysiysHisSerArgAlaAlaThrGlyIleLeuLy 462 AITTTTATACTAAAGAAAAATTTAGGGGGTGGGTGAGGGT 250 SLEULeuAlaAspLysAsnSerAspLeuPhelysIysTyrAlaLeuPhes 503 267 erProSerAspHisArgValProArgIleTyrValProLeuLysAspCys 504 CARAAGTA 284 ProGlnAspPheMetThrArgProLysAspPheAlacanThrLeuPheil 513 300 eCysKrgllelleAspTrpLysGluspCysAsnPheAlaleuChofil 514 AGTACAATTRAGGAGGTGATAAAATTCCAGGAGGCAGG 317 euAlaLysSerLeuGlyGlaAlaGlyGluspCysAsnPheAlaleuChglub 515 AGTACAATTRAGGAGGTGAAAAAAAAAAAAAAAAAATGAAAAATGAAAATGAAAATGAAAATGAAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAAATGAAATAAAAAA	439	::        see statements   see statement	461
462 ATCTTATACCTAAAGGACAAATTTAGGTGCTG 250 SLeuLeuAlaAspLysAsnSerAspLeuPhelys 267 erProSerAspHisArgValProArgIleTyrVa 267 erProSerAspHisArgValProArgIleTyrVa 268	m	ValTyrIleLeuGluLysLysHisSerArgAlaAlaThrGlyIleLeu	250
250 sLeuLeualadsplysasnSeraspleuphelys 267 erProSeraspHisargValProArglleTyrVa 284 ProGlnAspPheMetThrArgProArglleTyrVa 284 ProGlnAspPheMetThrArgProArglleTyrVa 285 crycagaarTacgaagaproCagaaga 386 cysarglleIleaspTrpLysGluAspCysAsn 387 euAlaLysSerLeuGlyGlnAlaGlyGlu1leGl 388 iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	9	ATCTTTATACCTAAAGGACAAAATTTAGGTGCTGTAGATGGT	503
503	2	<pre>sLeuLeuAlaAspLysAsnSerAspLeuPheLysLysTyrAlaLeuPhe</pre>	267
267 erProSerAspHisArgValProArgIleTyrVa  284 ProGlnAspPheMetThrArgProLysAspPheA  513	503		503
504	9	erProSerAspHisArgValProArgIleTyrValProLeuLysAspCy	283
284 ProGlnAspPheMetThrArgProLysAspPheA 513	0	CATAAAGTA	512
513	8	ProGlnAspPheMetThrArgProLysAspPheAlaAsnThrLeuPheI	300
300 eCysargileiledspftpptyscludspcysdsni:::::::::::::::::::::::::::::::::::	$\vdash$		514
515 AGTACAAATTACGAAGTATGCCGATAGTACTGAC 317 eualaLysSerLeuGlyGlnalaGlyGlulleGl 55 TCTCAGCAATATAGGTCATAAAAATGATCCAGG 334 IleLeuThrGluTyrGlyValAspheSerAspP 1	0	eCysArgllelleAspTrpLysGluAspCysAsnPheAlaLeuGlyG	317
317 eualalysSerLeuGlyGlnalaGlyGluileGli 555 TCTCAGCAATATTAGGTCATAAAATGATCCAGG 334 IleLeuThrGlufyrGlyValaspheSernaspP  1 1:::::::   ::::::::::::::::::::::::	$\leftarrow$	agtacaaattacgaagtatgccgatagtactgacaatccagaaggcc	564
34 IleLeuThrGluTyrGlyvalAspPheSerAspPP 	1	uAlaLysSerLeuGlyGlnAlaGlyGlulleGluProGluThrGluG ::::	333
STORITTACCAGCATGGAATAGAAATCGAGTY   Storing   State	Θ.	JoLeuThrGluTyrGlyvalAspPheSerAspPheSerSerGluVa   -:: ::::   :::::	350
350 uGluCysLeuProGlnSerLeuProTrpThrlle 662 ACAAGAAGCTGAAGAGTACCGGATGTALTAG 11::1   11:.::1   12:AAGGCTGAAGAGTACCGGATGTALTAG 1384 ThrAlaArgAspLeuArgLysAspCysIlePh 1384 ThrAlaArgAspLeuArgLysAspCysIlePh 140 yThrPheGluValGlyValHisIleAlaapval 140 yThrPheGluValGlyValHisIleAlaapval 140 yThrPheGluValGlyValHisIleAlaapval 141		CATTTACCAGCATGGAATAGAAATCGAGTTTCCAGATGATGT	Q
367 1yLysArgArgAspLeuArgLysAspCysIlePhania, 109 367 1yLysArgArgAspLeuArgLysAspCysIlePhania, 109 367 1yLysArgArgAspLeuArgLysAspCysIlePhania, 109 384 ThAlaArgAspLeuAspAspAlaLeuAlaCysAnia, 111111111111111111111111111111111111	S V	luCysLeuProGlnSerLeuProTrpThrIleProProAspGluVal	9
367 1YLYSANGASAPLOALAGUSASAPCYSILEPIN 384 ThrAlaArgASAPLEANGLYSASAPCYSILEPIN 385 ThrAlaArgASAPLEANGAGATGAATTAACAATT 386 ThrAlaArgASAPCATTAACAATGCACTGTGAATTACACATGCTGTAAA 400 9ThrPheGluValGlyValHisIleAlaAspVali 401 GATCCTAAAGATTACAGTTATATATGCAGTGTAAA 402 ThrPheGluValGlyValHisIleAlaAsaCarGTAAA 403 LeuValGlnLySValValPrOMetLeuProArgus 404 LeuValGlnLySValValProMetThrAgpLySTCCGACCCC 405 CTGTCGATCGGTAATCCCGATGATCGTACCCCACCC 406 UCYSSETLEUASDFTOMETTHAABLSLEUTHRI 407 SYSETLEUASDFTOMETTHAABLSLECCTTAACACC 408 ATGCTCATTAAATCCAAAGAAGATCGTTAACAC 409 AATAAATGAACAGAGGGGAAGTTGTAAAACATGA 409 AATAAATGAACAGAGGGGAAGTTGTAAAACATGA 400 AAATAAATGAACAAGAAGAAGATGAAAAACATGA 401 HIGALSSETCYSTHILYSLEUSETTYAASAHGAAGATGA 401 HIGALSSETCYSTHILYSLEUSCTYTAACATGAAGATGAAAATGAACATGAAGAATGAAATGA	662	GCTGAAGAAGTACCGGATGTAATAGAACCATCTGAAATC	0
384 ThralaArgAspLeuAspAspalaLeualaCysAs CATCAAAGATTTAGATGATGCCATTGCTGTAAA CONTRACTAAAGATTTAGATGATGATGCCATTGCTGTAAA CONTRACTAAAGATTTAGATGATGATGATGCTGTAAA CONTRACTGATATTATTATTATTATTATTATTATTATTATTATTATT	367	'gAspLeuArgLysAspCysIlePheThrIleAspProSe             :GATTTAAGAGATGAATTAACAATCACTATAGATGGCGC	383
759 GATICTAAAGATGATGATGCCATTGCTGTAAAGATGATGATGATGCCATTGCTGTAAAGATTAAGATGATGCCATTGCTGTAAAGATGATGATGCCATTGCTGTAAAGATGATGATGATGCCATTGCTGTAAAGATGATGATGATGTAAGATGATGATAAAGATGAT	œ	hrAlaArgAspLeuAspAspAlaLeuAlaCysArgArgLeuThrAspG	400
400 yThrPhecluValGlyValHisIleAlaAspVali 809 CACACCGGGTTACACATTATTGGGGTTGTAL 817 luGlySerSerLeuAspLySValAlaAlaGluAr 817 luGlySerSerLeuAspLySValAlaAlaGluAr 818 AAGGATCACCTTAGATAAAGAAGACTTATGATCG 829 AAGGATCACCTTAGATAAAGAAGACTTATGATCG 830 CTTCTCGATCGACTAATCCCGATGATTCCACCACC 843 LeuValGlnLySValValProMetLeuProArgLe 850 UCYSSErLeuAsnProMetThrAspLySLeuThri 851	'n	:::	808
417 1uGlySerSerLeuAsplysValAlaalaGluArg 11011ySerSerLeuAsplysValAlaalaGluArg 111111111111111111111111111111111111	400	ThrPheGluValGlyValHisIleAlaAspVal(	41
417 luGlySerSerLeuaspLysValaladaladluhrgalaThrSerValr	808	JACCGAGCTTACAGTTAGTATTGCAGATGTA.	828
434 LeuvalGlnLysValValProMetLeuProArgleuLeuCysGluGlu	5 1	IySerSerLeuaspLysValAlaAlaGluArgAlaThrSerValTy 	433
909 CTTGTCGATCGAGTAATCCCGATGATCCACCGTCTAAGTAAG	3	uValGlnLysValValProMetLeuProArgLeuLeuCysGluGlu	450
450 uCysSerLeuAsnProMetThrAspLysLeuThrPheSerVallleTrp 1	0	reficeatceagraatcccearearrecaceaceretaagraateg	928
467 ysLeuThrProGluGlyLysIleLeuGluGluTrpPheGlyargThrII :::::::::::::::::::::::::::::::::::	S S	CysSerLeuAsnProMetThrAspLysLeuThrPheSerVallleTrp                TGCTCATTAAATCCAGAAGATCGTTTAACATTAAGTTGTCGAATG	467 1008
	Ġ.	$\verb"euThrProGluGlyLysIleLeuGluGluTrpPheGlyArgThrIl"$	483
484 IleArgSerCysThrIysLeuSerTyrAspHisAlaGlnSerMetIle	0	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	1058
059 ATACATTCAAACTACAGAATGACATATGATGGTGCAGTTAACAAAATTATC 500 UASnProThrGluLysIleProGluGluGluLeuProPro :::::!	48	leArgSerCysThrLysLeuSerTyrAspHisAlaGlnSerMetIleG	200
500 uAsnProThrGluLys1leProGluGluGluLeuProPro 1::::::::::::::::::::::::::::::::::	02	TACATTCAAACTACAGAATGACATATGATGCAGTTAACAAAATTATCAC	1108
14lleSerProGluHisSerValGluGluValHisGlnAlaValLe	10	AsnProThrGluLysTleProGluGluGluLeuProPro ::: :::::::::	513 1158
	$\vdash$	IleSerProGluHisSerValGluGluValHisGlnAlaValLeu 	528

(first entry)

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19-MAR-1999
   NAME OF COLORS OF STREET O
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                                                                                                                                                                                                                                                                                                                                                                                                    1261 AAGGTATTCCAACAGAAGTGCTAATGAGAACGTGGCGAAGGAGAACGT 1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1359 .TTCAATAAATTGGAAGTACCATTTATTTATCGTGTTCATGAACAACCAA 1407
   1159 TAGATTTAGCGCAAGATTTATCAAATAGATTAATTCAT........ 1196
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               563 CGITCIAIGCAACAAGCACAITAIGAIGITAATITAGGACAITIIGG
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|1663 CTGATTTAACAGTGCATAGATTCGTAAATATTTAATAGAGAATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ::::||||||:::
1813 CTGATGAATTGAAAAAGCTGAGTAT......ATGATTCAACATATT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            595 ePheArgThrPheProGluGlnAlaLeuLeuArgArgHisProProG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       612 InThrLysMetLeuSerAspLeuValGluPheCysAspGlnMetGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          645 rPheGlyAspAspLysTyrSerLeuAlaArgLysGluValLeuThrAsnM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           662 etTyrSerArgProMetGlnMetAlaLeuTyrPheCysSerGlyMetLeu
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                                                                                                                                                                                                     545 yAlaLeuArgLeuAspGlnLeuLysLeuAlaPheThrLeuAspHisGluT
                                                                                                                                                                                                                                                               1214 AGAAATTGATTTTGAT...ATTAATGAAGCGAAAGTACTTGTGAATGACG
                                                                                                                                                                                                                                                                                                                                   562 hrGlyLeuProGlnGlyCysHisIleTyrGluTyrArgAspSerAsnLys
                                                                    529 AsnLeuHisSerIleAlaLysGlnLeuArgArgGlnArgPheValAspGl
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                                                                                                                                 ....ATGCGCAAACGTCGT
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ID AAX13264 standard; DNA; 6005 BP
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A computer readable medium has been developed which has recorded on it 982 nuclectide sequences isolated from the Enterococcus faecalis genome. AAX12938 to AAX13919 represent these nuclectide sequences which are primary nuclectide sequences, also known as contigs. The computer-based system can identify fragments of the Enterococcus faecalis genome with commercial importance. The products can be used to detect the presence of Enterococcus faecalis in samples. They can also be used for dispension of disease, and for identifying agents which can be progression of disease, and for identifying agents which can be modulate the growth or pathogenicity of Enterococcus faecalis, or another related organism, in vivo or in vitro. In particular the polypeptides encoded by the Enterococcus faecalis nucleotide sequences can be used in vaccines to prevent or attenuate an Enterococcal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New isolated Enterococcus faecalis polynucleotides and polypeptides - used to develop products for the detection of Enterococcus and for use in vaccines for prevention or attenuation of Enterococcus infection.
                                                          Enterococcus faecalis; contig; detection; Enterococcal infection; vaccine; attenuation; computer readable medium; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          993 AATIGCACAAGGCTIGAATITAGAAAAAGGTTCAGATTITAAAATTITAG 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               955 ATGGAAAGCCAAAAAAAAAAAGCTTT.....TCAATGGAAGA 992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 6005 BP; 2076 A; 973 C; 1287 G; 1659 T; 10 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ....ThrLeuIleGlnGlyValLe 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42 MetArgGlyLysLysSerIlePheGluThrTyrMetSerLysGluAs
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Gaps: 31
Percent Identity: 24.466
faecalis genome contig SEQ ID NO:327
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kunsch CA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       from: 1
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97US-0044031.
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US-09-647-377-9 x AAX13264
                                                                                                                                                     Enterococcus faecalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1999-045171/04.
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Ratio:
Percent Similarity:
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      Enterococcus
                                                                                                                                                                                                               WO9850555-A2
                                                                                                                                                                                                                                                                                                                                                                                                                         06-MAY-1997;
16-MAY-1997;
                                                                                                                                                                                                                                                                                                                                 04-MAY-1998;
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	:::!             :::  AAAGGCAAAGTCAATGAAAGACTTATTAATAGAAGGAACGTT	1142
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90	lyaspargaspilePheileAspGlyValValAlaargasnargalaLeu :::	106 1233
34	AsnGlyAspLeuValValLysLeuLeuProGluAspGlnTrpLy :::	122 1283
122 284	salaValLysProGluSerAsnAspLysGluIleGluAlaThrTyrGluA :           ::: AGATCGCGGCGGAGAAGGTAAAGAAATTAAAGAGCGAGCAGTGA	139 1333
139 334	laAspileProGluGluGlyCysGlyHisHisProLeuGlnGlnSerArg	155 1383
156 384	LysGlyTrpSerGlyProAspValileIleGluAlaGlnPheAspAspSe	172 1412
172 413	rAspSerGluAspArgHisGlyAsnThrSerGlyLeuValAspGlyValL:   :::  :::: ::::    :::	189 1462 `
189 463	ysLysLeuSerIleSerThrProAspArgGlyLysGluAspSerSerThr    :::	205 1482
206 483	ysAspGluAsnThrProlleProGlnAspThrArgGlyLe	222 1488
222	SSErAlaLysValValTyrIleLeuGluL     :::::::     GCTGAAATTACCTATTATCCAGATC	239 1513
239 514	ystystisSerArgAlaalaThrGlylleLeuLysLeuLeuAlaAsp ::::::: AAGAATATCCAACGAGTATGGAAGGACTAGTCAAACAAGTGATTGGTCAT	254 1563
255 564	LysAsnSerAspLeuPheLysLysTyrAlaLeuPheSerProSerAspHi        AAAAAT	271 1569
271 570	:glleTyrValProLeuLysAspCysProGlnaspPheM	288 1588
288	ysAspPheAlaAsnThrLeuPheIleCysArgIleIle	304 1593
05	.ysGluAspCysAsnPheAlaLeuGlyGlnLeuAlaLysSerLe	
93		1593
21 94	uGlyGlnAlaGlyGluIleGluProGluThrGluGlyIleLeuThrGluT :	338 1606
338	yrGlyValAspPheSerAspPheSerSerGluValLeuGluCysLeuPro :::    :::	354 1653
55	GInSerLeuProTrpThrIleProProAspGluValGlyLysArgArgAs:	371

1654	AGTCGGTCGTCGGGA	1700
371	9LysAspCys1lePheThr1leAspProSerThrAlaArgAspL   ::             ::    ::     TGATCAGTTGATGACGATTGATGAGAGAGATGCGAAAGATT	388 1750
388	laCysArgArgLeuThrAspGlyThrPheGluVal .:: ::::   ::::    :::	404
405	GlyValHisIleAlaAspvalSerTyrPheValProGluGlySerSerLe 4	421 1850
421	AlaThrSerValTyrLeuValGlnLysv :::                3GTACAAGTGTCTATTTGACAGACCGAG	438
438	roargleuleuCysGluGluLeuCysSerLeuAsn    ::	454 1950
455 1951	<pre>spLysLeuThrPheSerVallleTrpLysLeuThrProGl::            :       ::     .acgTTTAACCATGAGTTGTGAGATGGAAATTACACCAGA</pre>	471
471	=LeuGluGluTrpPheGlyArgThrIleIleArgSerCysT	488 2050
488	-aspHisAlaGlnSerMetIleGluAsnProThrGlu ::::::::::::::::::::::::::::::::::::	504
505	9GluGluGluLeuProProIleSerPr 	
516 2142	luGluValHisGlnAlaValLeuAsnLeuHisSerI	533
533 2165	euargargGlnargPheValaspGlyalaLeuargLeu 	549 2205
550 2206	uLysLeualaPheThrLeuaspHisGluThrGlyLeuProGl	566
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583 2303	eualaasnMetalaValalaHisLysIlePhe        :::       caGCGaATGAAACTGTGGCGCGTCATTATCATGACTTAAAA	596 2352
597 2353	roGluGlnalaLeuLeuArgArgHisProProGlnTh	613 2390
613 2391	erAspLeuValGluPheCysAsp :: AACGTTTCTTTGACTTTGCTGCA	530
630 2441	aLeuAs: TTCACC	546 2490
647	YrSerLeuAlaArgLysGluValLeuThrA :::::: AAAATAAGCCGGAAGAAGAAGTGGTTTATTAATAA	563

2538	SetAlgrowecolimeratabeulytriecyssetslywechedeina 	2566
680 2567	spGlnGluGlnPheArgHisTyrAlaLeuAsnValProLeuTyrThrHis ::::::::::::	696 2616
697 2617	PheThrSerProIleArgArgPheAlaAspVallleValHisArgLeuLe 	713 2666
713	ualaalaalaLeuGlyTyrSerGluGlnProAspValGlu	726 2707
7:	727ProAspThrLeuGlnLysGlnAlaAspHisCysAsnAsp 7 ::::    ::     :::     :::       :::	739 2757
740	ArgArgMetAlaSerLysArgValGlnGluLeuSerIleGlyLe	754 2807
754	uPhePheAlaValLeuValLysGluSerGlyProLeuGluSerGluAlaM    ::::::                 ATTTATGGTAGATAAGG	771 2835
7.	771 etValMetGlyValLeuAsnGlnAlaPheAspValLeuValLeuArgPhe 7	787 2868
7.	788 GlyValGlnLysArglleTyrCysAs 7	796 2918
7	796 nAlaLeuAlaLeuArgSerTyrSerPheGlnLys	808 2968
8 6	808 alGlyLysLysProGluLeuThrLeu 816       :::::: 2969 TTGGTGAACGGAATGACTTTC 2994	

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TYPE: nucleic acid
STRANDEDNESS: double
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US-08-441-139-8
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3377
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Sequence 11, Appl
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                                                                                             Description
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Sequence 1
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US-08-955-918C-1

US-08-478-435-110

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US-08-474-671-110

US-08-474-671-110

US-08-474-671-110

US-08-474-671-110

US-08-483-77A-110

US-08-487-488-110

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US-08-478-373-108

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US-08-483-577A-108

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US-08-478-435-105
US-08-337-483-105
                                                                                                                                                                         Total number of hits satisfying chosen parameters:
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        GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
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                                                                                                                              IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
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Match
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Perfect score:
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                                                                                         2015 AAGTCCCTATTTGCACCTACCTTCCCCAAGCCAACATCCAGAGCTAATCCAAGAAGGG 2074
                                                                                                                                                              2135 ACAGATGCCCTCTTGATGCGGATATTTACATTTGCGGCTCCAAAGATCGTAATAGAGCA 2194
                                                                                                                                                                                                                                                                                                                  2195 CTTGAAGGTGATTTAGTCGCGGTAGAACTATTAGTTGTGGACGATGTTTGGGAGTCCAAG 2254
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                                          Gaps
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                                        Indels
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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
1.7%; Score 52.4; DB 1;
52.7%; Pred. No. 0.00023;
live 0; Mismatches 121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30472/114 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: EP 91 114 300. FILING DATE: 26-AUG-1991 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 14, Application US/08232463
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TELEX: 899149
INPORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleic acid
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road,
CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: BENT, Stephen A. REGISTRATION NUMBER: 29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
TELEPHONE: (703)836-9300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER:
                 Best Local Similarity 52.7
Matches 138; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; CLONE: pTZgpt-Fls
US-08-232-463-14
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-232-463-14/c
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     Query Match
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476 gaggatcagtggaaggcagttaaaccagaggcaatgacaatgacaagaaatagaagctacttat 535
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                                                                                                                                                                                          536 gaagctgacatccctgaagagggctgtggacatcaccccctgcagcagtcccggaaaggc
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Litarity 3.9%; Pred. No. 0.0096; Conservative 212; Mismatches 159; Trad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: LOTZ, HOTST
APPLICANT: LOTZ, HOTST
APPLICANT: LAUTICKe, Stephanie
APPLICANT: Froberg, Claus
APPLICANT: Froberg, Claus
TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING ENZYMES
TITLE OF INVENTION: FROM WHEAT WHICH ARE INVOLVED IN STARCH
TITLE OF INVENTION: SYNTHESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Fish & Neave
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1: James F. Haley, Jr., c/o
1251 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: DE 196 21 588.9
FILING DATE: 29-MAY-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: DE 196 36 917.7
FILING DATE: 11-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1067 RATCGCAAGCTCCCTCGACCTGCAGC 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            United States of America
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Block, Martina
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS: ADDRESSE: James F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
                   Query Match
Best Local Similarity
Matches 15; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: Block,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New York
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10020
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REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: MNI-CTELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
INFORMATION FOR ESO ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 2184 base pairs
TYPE : nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2935 tgaggcctggcctgtgcttccc 2956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2040 GGGTGCCTGGCCTCGTCCCCC 2019
                                                                                                                                                                                                                                                                                 , LOCATION: 569..1616
US-08-955-918C-1
                                                                                                                                                                                                                          MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE: Ontario
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 6th r. CITY: Toronto
                                                                                                                                                                                                                                                                NAME/KEY: CDS
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US-08-487-890A-110/c
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: Kleyn, Patrick, and Moore, Karen
TITLE OF INVENTION: RP Compositions and Therapeutic and
TITLE OF INVENTION: Diagnostic Uses Therefor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ZIP. 02109-1875
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFFWARE: PARENTIA Release #1.0, Version #1.25
CURRIY APPLICATION DATA:
APPLICATION NUMBER: US/08/955,918C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 1.3%; Score 39.4; DB 4; Best Local Similarity 62.9%; Pred. No. 0.56; Matches 61; Conservative 0; Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LIBRARY: CDNA library in pBluescript sk (-) CLONE: TaSSS
    APPLICATION NUMBER: PCT/EP97/02793
FILING DATE: 28-MAY-1197
ATTORNEY/AGENT INFORMATION:
NAME: Haley, Jr., James F.
REGISTRATION NUMBER: 27,794
REFERNCE/DOCKET NUMBER: AGREVO-9
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 596-9090
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 2239 base pairs
TYPE: NUCLEIC CALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 16
CORRESSONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD, LLP
STREET: 28 State Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/697,766
FILING DATE: 29-AUG-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/08955918C Patent No. 6268130
                                                                                                                                                                                                                                                                                                                                                                                        Triticum aestivum L.
                                                                                                                                                                                                                                                                                                                                                                                                                                ca. 21 d Caryopses
                                                                                                                                                                                                                                                                  MOLECULE TYPE: Linear
MOLECULE TYPE: CDNA to mRNA
HYPOTHETICAL: NO
ANTI-SENSE: NO
ORIGINAL: COM-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mandragouras, Amy E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Boston
STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                           cv. Florida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: 3..2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
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US-08-955-918C-1/C
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                                                                                                                                                                                                                                                                                                                                                                                                                              HAPLOTYPE:
                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM:
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2100 TITITITITITITITITITITITITITITITITIKGCCAAGGACGCGGCCTITAIIGGGGATGI 2041
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1.3%; Score 39.2; DB 4; Length 2184;
Best Local Similarity 54.2%; Pred. No. 0.63;
Matches 77; Conservative 1; Mismatches 64; Indels 0;
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/487,890A
FILING DATE: 07-JUN-1993
CLASSIFICATION: 435
PRIOR APPLICATION NUMBER: US 08/175,116
FILING DATE: 29-DEC-1993
PRIOR APPLICATION NUMBER: US 08/148,968
FILING DATE: 08-NOV-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Barkness, Robin
APPLICANT: Barkness, Robin
APPLICANT: Schryvers, Anthony
APPLICANT: Chong, Pele
APPLICANT: Tang, Yan-Ping
APPLICANT: Murdin, Andrew
APPLICANT: Klein, Michel
TITLE OF INVENTION: Transferrin Receptor Genes
NUMBER OF SEQUENCES: 147
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    E: Sim & McBurney
6th Floor, 330 Unviersity Avenue
36,207
R: MNI-007CPDV2CPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 110, Application US/08487890A Patent No. 5708149 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTR: Canada
ZIP: M5G IR7
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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Qy 2894 tt 2895
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 1.3%; Score 38.8; DB 1; Length 1974; Best Local Similarity 57.4%; Pred. No. 0.77; Matches 70; Conservative 0; Mismatches 52; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPOTER READANGE FORM:

WIDDIUM TYPE: Floppy disk
COMPUTER: TIBM FC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OSTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/478,435
FILING DATE: 07-JUN-1995
CLASSIFICATION NUMBER: US 08/337,483
FILING DATE: 08-NOV-1994
CLASSIFICATION: 435
FILING DATE: 08-NOV-1994
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Klein, Michel
TITLE OF INVENTION: Transferrin Receptor Genes
THRER OF SEQUENCES: 147
CORRESPONDENCE ADDRESS:
                                                                                        1038-466 MIS: jb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Sim & McBurney
STREET: Suite 701, 330 University Avenue
CITY: Toronto
STATE: Ontario
COUNTRY: Canada
ZIP: M5G 1R7
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US-08-478-110/C
US-08-478-110/C
US-08-478-110/C
US-08-478-110/C
US-08-478-110/C
US-08-478-110/C
US-08-478-110/C
US-08-110/C
US-08
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FILING DATE: 29-DEC-1993
NAME: Stewart, Michael I
REGISTRATION NUMBER: 24,973
REFERENCE/DOCKET NUMBER: 1038-
TELECOMMUNICATION INFORMATION:
TELEPHONE: (416) 595-1163
FELEPHONE: (416) 595-1163
INFORMATION FOR SEQ ID NO: 110:
SEQUENCE CHARACTERISTICS:
LENGTH: 1974 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 08-NOV-1
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; NAME/KEY: CDS
; LOCATION: 20..1912
US-08-487-890A-110
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2774 tgctggcttttaggaataggaccttttgacaccaaaggggatttttaatttggtttttaa 2833
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Harkness, Sheena
APPLICANT: Harkness, Robin
APPLICANT: Schryvers, Anthony
APPLICANT: Gray-owen, Scott
APPLICANT: Gray-owen, Scott
APPLICANT: Yang, Yan-ling
APPLICANT: Murdin, Andrew
APPLICANT: Michel
TITLE OF INVENTION: Transferrin Receptor Genes
NUMBER OF SEQUENCES: 147
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION UNBER: US/08/337,483
CLASSIFICATION: 435
                                                                                           NAME: Stewart, Michael I
REGISTRATION UNMBER: 24,973
REFERENCE/DOCKET NUMBER: 1038-462 MIS:vg
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Sim & McBurney
STREET: Suite 701, 330 Unviersity Avenue
CITY: Toronto
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/148,968
FILING DATE: 08-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: Stewart, Michael I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 110, Application US/08337483
Patent No. 5922562
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                TELEPHONE: (416) 595-1155
TELEPAX: (416) 595-1163
INFORMATION FOR SEQ ID NO: 110:
SEQUENCE CHARACTERISTICS:
LENGTH: 1974 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Stewart, Michael I
REGISTRATION NUMBER: 24,973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                             20..1912
                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: Canada
ZIP: M5G 1R7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: Ontario
                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: CDS
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US-08-478-435-110
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ADDRESSEE: Sim & MCBurney
STREET: Suite 701, 330 University Avenue
CITY: Toronto
STATE: Ontario
CONTRY: Canada
ZIP: MSG IR7
COMPUTER: READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM FC Compatible
COMPUTER: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: LOOSMORE, Sheena
APPLICANT: Harkness, Robin
APPLICANT: Schryvers, Anthony
APPLICANT: Gray-Owen, Scott
APPLICANT: Gray-Owen, Scott
APPLICANT: Klein, Michel
APPLICANT: Klein, Michel
TITLE OF INVENTION: Transferrin Receptor Genes
NUMBER OF SEQUENCES: 147
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/474,671
FILING DATE: 07-00N-1995
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/337,483
FILING DATE: 08-NOV-1994
CLASSIFICATION: 530
PRIOR APPLICATION: DATA:
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Patent No. 6008326
                                                                          ALTURNIA MOMBER: 24,973
REGISTRATION NUMBER: 24,973
REFERENCE/DOCKET NUMBER: 1038
TELECOMMUNICATION INFORMATION:
TELEPAX: (416) 595-1155
TELEFAX: (416) 595-1163
INFORMATION FOR SEQ ID NO: 110: SEQUENCE CHARACTERISTICS: LENGTH: 1974 base pairs
TYPE: nucleic acid
STRANDENESS: single
FILING DATE: 08-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: Stewart, Michael I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20..1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: CDS
LOCATION: 20...
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1453 TGCAGGTATGTCGGCCTTGGCAGTACGTGACCTAATAAGAATTGATAAGACTCTTGAT 1394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.3%; Score 38.8; DB 2; Length 1974; 57.4%; Pred. No. 0.77; ttive 0; Mismatches 52; Indels 0.
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SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/478,373
FILING DATE: 07-JUN-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/337,483
FILING DATE: 08-NOV-1994
CLASSIFICATION: 435
DEFICE TO A CONTROL OF THE CONTROL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: LOCSMOTE, Sheena
APPLICANT: Harkness, Robin
APPLICANT: Schryvers, Anthony
APPLICANT: Chong, Pele
APPLICANT: Gray-Owen, Scott
APPLICANT: Yang, Yan-Ping
APPLICANT: Murdin, Michel
TITLE OF INVENTION: Transferrin Receptor Genes
NUMBER OF SEQUENCES: 147
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Sim & McBurney
STREET: Suite 701, 330 University Avenue
                               1038-410 MIS: jb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/175,116
FILING DATE: 29-DEC-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/148,968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 110, Application US/08478373 Patent No. 5922841
                     REFERENCE/DOCKET NUMBER: 1038.
TELECOMMUNICATION INFORMATION:
TELEPHONE: (416) 595-1155
TELERAX: (416) 595-1163
INFORMATION FOR SEQ ID NO: 110:
SEQUENCE CHARACTERISTICS:
LENGTH: 1974 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLUM TYPE: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MG-COMMISSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 57.43
Matches 70; Conservative
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MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: CDS
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STATE: Ontario
COUNTRY: Canada
ZIP: M5G 1R7
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US-08-478-373-110/c
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US-08-337-483-110
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Floppy disk
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ZIP: M5G 1R7
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; NAME/KEY: CDS
; LOCATION: 20..1912
US-08-483-577A-110
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: Ontario
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 57.4%; Pred. No. 0.77;
Matches 70; Conservative 0; Mismatches 52; Indels 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: LOSSMOTE, Sheena
APPLICANT: LOSSMOTE, Sheena
APPLICANT: Barkness, Robin
APPLICANT: Schryvers, Anthony
APPLICANT: Chong, Pele
APPLICANT: Gray-Owen, Scott
APPLICANT: Yang, Yan-Phing
APPLICANT: Mardin, Andrew
APPLICANT: Michel
TITLE OF INVENTION: Transferrin Receptor Genes
NUMBER OF SEQUENCES: 160
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
         FILING DATE: 29-DEC-1993
PRIOR APPLICATION DATA: 08/148,968
APPLICATION NUMBER: US 08/148,968
FILING DATE: 08-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: Stewart, Michael I
RECISTRATION NUMBER: 24,973
RECISTRATION NUMBER: 24,973
TELECHOME: (416) 595-1155
TELECHOME: (416) 595-1165
INFORMATION FOR SEQ ID NO: 110: SEQUENCE CHRACTERISTICS:
SEQUENCE CHARACTERISTICS:
SEQUENCE CHARACTERISTICS:
SEQUENCE CHARACTERISTICS:
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STREET: Suite 701, 330 Unviersity Avenue
APPLICATION NUMBER: US 08/175,116
FILING DATE: 29-DEC-1993
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FILING DATE: 07-4UN 1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 110, Application US/08483577A Patent No. 6015688 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                       LENGTH: 1974 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                 ) NAME/KEY: CDS
; LOCATION: 20..1912
US-08-474-671-110
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STATE: Ontario
COUNTRY: Canada
ZIP: M5G 1R7
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APPLICANTON NUMBER: US 09/313,483
PRIOR APPLICATION NUMBER: US 08/15,116
PRIOR PAPLICATION NUMBER: US 08/175,116
PRIOR PAPLICATION NUMBER: US 08/175,116
PRIOR APPLICATION NUMBER: US 08/175,116
PRIOR PRIOR PRO READ IN 08. US 10. US 08/175,116
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Patent No. 6358727

GENERAL INFORMATION:
APPLICANT: LOSSMORE, Sheena M
APPLICANT: Chony Pele
APPLICANT: Chony Pele
APPLICANT: Chony Pele
APPLICANT: Chony Pele
APPLICANT: Chay-Owen, Scott
APPLICANT: Wang, Yan-Ping
APPLICANT: Murdin, Andrew D
APPLICANT: Righ, Michel H
TITLE OF INVENTION: HARMOPHILUS TRANSFERRIN RECEPTOR GENES
NUMBER OF SEQUENCES: 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 38.8; DB 4; Length 1974; Pred. No. 0.77; 0; Mismatches 52; Indels 0
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ADDRESSEE: Sim & McBurney
STREET: 6th Floor, 330 University Avenue
PRIOR APPLICATION: 435
PRIOR APPLICATION DATA:
APPLICATION DATE:
FILING DATE: 07-JUN-1995
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/337,483
FILING DATE: 08-NOV-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/175,116
FILING DATE: 29-DEC-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/148,968
FILING DATE: 08-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: STEWARTION NUMBER: 24,973
REGISTRATION NUMBER: 29,973
REGISTRATION NUMBER: 1038-720
TELECOMMUNICATION INPERR: 1038-720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 1.3%;
Best Local Similarity 57.4%;
Matches 70; Conservative C
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TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ), NAME/KEY: CDS
), LOCATION: 20..1912
US-08-897-438-110
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COUNTRY: Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 6th F]
CITY: Toronto
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US-08-637-654-110/c
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2774 tgctggcttttaggaataggaccttttgacaccaaaggggatttttaatttggttttaa 2833
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Pred. No. 0.77;
0; Mismatches 52; Indels 0
MEDIUM TYPE: Floppy dish
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/637,654
PTIING DATE: 05-AUG-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 147
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6th Floor, 330 Unviersity Avenue
                                                                                                                             FILING DATE: 05-AUG-1996
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCI/CA94/00616
                                                                                                                                                                                                                                                                                        1038-595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 108, Application US/08487890A Patent No. 5708149 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                          ATTORNATION NUMBER: 24,973
REGISTRATION NUMBER: 24,973
REFERENCE/DOCKET NUMBER: 1038-
TELECOMMUNICATION INFORMATION:
TELEFAX: (416) 595-1155
TELEFAX: (416) 595-1163
INFORMATION FOR SEQ ID NO: 110:
SEQUENCE CHARACTERISTICS:
LENGTH: 1974 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: LOOSMOCE, Sheena APPLICANT: Harkness, Robin APPLICANT: Schryvers, Anthony APPLICANT: Chong, Pele APPLICANT: Gray-Owen, Scott APPLICANT: Yang, Yan-Ping APPLICANT: Murdin, Andrew APPLICANT: Klein, Michel TITLE OF INVENTION: Transferrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.3%;
Best Local Similarity 57.4%;
Matches 70; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sim & McBurney
                                                                                                                                                                                                           FILING DATE: ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20..1912
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: Canada
ZIP: M5G 1R7
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CITY: Toronto
STATE: Ontario
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US-08-487-890A-108/c
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Live 0; Mismatches 57; Indels 0;
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Patent No. 5922562
GENERAL INFORMATION:
APPLICANT: LOSENCE, Sheena
APPLICANT: Schryvers, Anthony
APPLICANT: Chong, Pele
APPLICANT: Gray, Pele
APPLICANT: Gray, Yan, Scott
APPLICANT: Tang, Yan, Ping
APPLICANT: Wurdin, Andrew
APPLICANT: Murdin, Andrew
APPLICANT: Klein, Michel
TITLE OF INVENTION: Transferrin Receptor Genes
WUMBER OF SEQUENCES: 147
            PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                          NAME: Stewart, Michael I
REGISTRATION NUMBER: 4,973
REFERENCE/DOCKET NUMBER: 1038-462 MIS:vg
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 1800 595-1155
TELEPRAX: (416) 595-1163
INFORMATION FOR SEQ ID NO: 108:
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STREET: Suite 701, 330 Unviersity Avenue
                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/337,483
FILING DATE: 08-NOV-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/175,116
FILING DATE: 29-DEC-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/148,968
FILING DATE: 08-NOV-1993
ATTONEX/AGENT INFORMATION:
                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/478,435
FILING DATE: 07-JUN-1995
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 1993 base pairs
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Best Local Similarity 56.2%
Matches 73; Conservative
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ZIP: M5G 1R7
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STATE: Ontario
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; LOCATION: 3..1
US-08-478-435-108
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US-08-337-483-108/c
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US-084-478-435-108/C
Sequence 108, Application US/08478435
Patent No. 5922323
GENERAL INFORMATION:
APPLICANT: Harkness, Robin
APPLICANT: Gray-owen, Sheen
APPLICANT: Gray-owen, Scott
APPLICANT: Gray-owen, Scott
APPLICANT: Tang, Yan-Fing
APPLICANT: Tang, Yan-Fing
APPLICANT: Murdin, Andrew
TITLE OF INVENTION: Transferrin Receptor Genes
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                            NAME: Stewart, Michael I
REGISTRATION NUMBER: 24,973
REFERENCE/DOCKET NUMBER: 1038-466 MIS:jb
TELECHONE: (416) 595-1155
TELEPHONE: (416) 595-1153
INFORMATION FOR SEQ ID NO: 108:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: Sim & McBurney
Suite 701, 330 University Avenue
                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/175,116
FILING DATE: 29-DEC-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/148,968
FILING DATE: 08-NOV-1993
ATTORNEY/AGENT INFORMATION:
                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/487,890A
FILING DATE: 07-JUN-1993
CLASSIFICATION: 435
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1993 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; LOCATION: 3..1946
US-08-487-890A-108
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: linear
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RY: Canada
M5G 1R7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: CDS
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COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: LIBW FC compatible
OPERATUG SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION NOTA:
APPLICATION NUMBER: US/08/337,483
FILING DATE: 08-NOV-1994
CLASSIFICATION: 435
ATTORNEY AGENT INFORMATION:
NAME: Stewart, Michael I
REGISTRATION NUMBER: 1038-410 MIS:jb
TELECOMMUNICATION INFORMATION:
TELEPHONE: (416) 595-1155
TELEPHONE: (416) 595-1163
SEQUENCE CHARACTERISTICS:
LENGARTION FOR SEQ ID NO: 108:
SEQUENCE CHARACTERISTICS:
LENGARTION FOR SEQ ID NO: 108:
SEQUENCE CHARACTERISTICS:
LENGARTH: 1993 base pairs
TYPE: nucleic acid
STRANDEDNESS: SINgle
FASTURE
NAME FEVENCE CONS
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; LOCATION: 3..1946
US-08-337-483-108
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Search completed: July 8, 2002, 08:00:20 Job time: 147 sec

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Sequence 5, Ap Sequence 5, Ap Sequence 5, Ap Sequence 1, Ap Sequence 3, Ap Sequence 3, Ap Sequence 1, Ap Sequence 10, Ap Sequence 11, Ap Sequence 1, Ap Sequ

Appli Appli Appli Appli Appli Appli

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Sequence 3.0.4
Sequence 1. Application US/09063950C
Patent No. 6225085
GENERAL INFORMATION:
APPLICANT: HOLIVERAND:
TITLE OF INVENTION: THEREFOR
TITLE OF INVENTION: THEREFOR
TITLE OF INVENTION: THEREFOR
TITLE OF INVENTION: THEREFOR
CURRENT APPLICATION NUMBER: US/09/063,950C
CURRENT FILING DATE: 1998-04-21
NUMBER OF SEQ ID NOS: 9
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 1
LENGHE: 2852
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Sequence 25, Application US/09248335

Patent No. 6096504

GENERAL INFORMATION:

APPLICANT: MCGONGIE, BRIAN

APPLICANT: O'KEEF, DANIEL

TITLE OF INVENTION: PLANT GLUTATHIONE-S-TRÂNSFERASE ENZYMES

FILE REPERENCE: CL-1128-A

CURRENT PELLOR DATE: 1999-02-10

EARLIER APPLICATION NUMBER: US/09/248,335

CURRENT PILING DATE: 1997-September-05

NUMBER OF SEQ ID NOS: 74

SOFTWARE: MICROSOft Word Version 7.0A

SEQ ID NO 25

LENGTH: 1279
US-09-172-528-5
US-09-38-199-5
US-09-503-579-5
US-09-323-427-1
US-08-33-427-2
US-08-937-466-3
US-09-172-528-3
US-09-172-528-3
US-09-172-528-3
US-09-103-6668-16
US-09-105-6668-16
US-09-105-6668-16
US-09-105-6668-16
US-08-09-185-6668-16
US-08-933-4248-1
US-08-937-466-1
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US-09-063-950-1
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US-09-063-950-1
         TYPE: DNA
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Sequence 2, Appli
Sequence 5, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 1, Appli
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Sequence 1, Appli
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Appl
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                                                                                                                                                                                                                                                                                                                                                                                               sequence 80, sequence 80, sequence 10, sequence 11, sequence 11, sequence 1, sequence 2, sequence 6, sequence 3, sequence 1, s
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Sequence 12,
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Sequence 2
Sequence 2
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Sequence 3
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/cgn2_6/ptodata/2/ina/5B_COMB.seq:*
/cgn2_6/ptodata/2/ina/6A_COMB.seq:*
/cgn2_6/ptodata/2/ina/6B_COMB.seq:*
/cgn2_6/ptodata/2/ina/PcTUS_COMB.seq:*
/cgn2_6/ptodata/2/ina/PcTUS_COMB.seq:*
                                                                     Compugen Ltd.
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US-07-68-431-1
US-07-68-431-1
US-09-040-98-8
US-09-123-912-80
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US-08-92-9368-10
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US-09-232-191-12
US-09-232-200-12
US-09-232-197-12
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US-08-636-176-1
US-08-884-324-2
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US-08-849-751-3
US-09-178-816-3
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US-08-140-797-1
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-08-954-333-9
-08-202-389-1
-08-937-466-5
                                         GenCore version 4.5 Copyright (c) 1993 - 2000 Comp
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                                                                                                                                                              OM nucleic - nucleic search, using sw model
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length: 2000000000
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3100
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Perfect score:
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DB 4; Length 2852; 0.24;

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Sequence I, Application PC/TUS9200018
GENERAL INFORMATION:
APPLICANT: HPOffman, Stephen L.
APPLICANT: Charoenvit, Yupin
APPLICANT: Hedstrom, Richard
APPLICANT: Rogers IV, William O.
TITLE OF INVENTION: Protective malaria sporozoite surface protein
TITLE OF INVENTION: Immunogen and gene encoding
           DB 1; Length 4673;
1.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.7%; Score 23; DB 5; Length 4673;
                                                      0; Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: A. David Spevack
STREET: NMRDC Building 1 T-12 National Naval
STREET: Medical Center
CITY: Bethesda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 0.7%; Score 23; DB 5; Best Local Similarity 100.0%; Pred. No. 1.5; Matches 23; Conservative 0; Mismatches
      Query Match 0.7%; Score 23; DB Best Local Similarity 100.0%; Pred. No. 1.5 Matches 23; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM: Plasmodium yoelii
STRALN: 17x(NL)
BDEVELOPMENTAL STAGE: erythrocytic stage
TISSUE TYPE: Blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.24 CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US92/00018 FILING DATE: 19920103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: USA
ZIP: 20814-5044
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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CLASSIFICATION: 424
ATTONEYAGEWI INRORMATION:
NAME: SPEVACK, AVTAIN D.
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 295-6759
TELEFAX: (301) 295-4033
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CELL TYPE: erythrocytic stage IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) HYPOTHETICAL: N ANTI-SENSE: N ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4673 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEIC ACID
EDNESS: double
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NAME/KEY: CDS
-----TON: 718..3195
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CTHER INFORMATION:
PCT-US92-00018-1
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PCT-US92-00018-1
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                                                                                                                                   Gaps
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Patent No. 5198335
GENERAL INFORMATION:
APPLICANT: Hoffman, Stephen L.
APPLICANT: Heachrow, Richard
APPLICANT: Rousetrow, Richard
APPLICANT: Rogers IV, William O.
TITLE OF INVENTION: Protective malaria sporozoite surface protein
VMMER OF SEQUENCES: 2
                                                                                                                                 0;
                                                                                 0.7%; Score 23; DB 3; Length 1279;
100.0%; Pred. No. 1.7;
Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LIBRARY: Py-lambdagt11-2-7 kb genomic expression CLONE: Py10.1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESONDENCE ADDRESS: 2
ADDRESSEE: ADDRESS: Sevack
STREET: NARDC Building 1 T-12 National Naval
STREET: Medical Center
CITY: Bethesda
STATE: MC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEVELOPMENTAL STAGE: erythrocytic stage TISSUE TYPE: Blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.24
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/638,431
FILING DATE: 19910110
                                                                                                                                                                      3078 gtgtgaaaaaaaaaaaaaa 3100
                                                                                                                                                                                            CELL TYPE: erythrocytic stage IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Spevack, Avrom D.
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 295-6759
TELEFAX: (301) 295-4033
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM: Plasmodium yoelii
STRAIN: 17X(NL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
HYPOTHETICAL: N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 19910110
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 4673 base pairs
NUCLEIC ACID
EDNESS: double
                                                                               Query Match 0.7%
Best Local Similarity 100.0
Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: CDS
LOCATION: 718..3195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; OTHER INFORMATION:
US-07-638-431-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RY: USA
20814-5044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGINAL SOURCE:
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; ORGANISM: maize US-09-248-335-25
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APPLICANT: Kellogg, Jill A.
APPLICANT: Bestwick, Richard K.
TITLE OF INVENTION: PLANT TISSUE / STAGE SPECIFIC PROMOTERS FOR TITLE OF INVENTION: REGULATED EXPRESSION OF TRANSGENES IN PLANTS NUMBER OF SEQUENCES: 27
CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                          Length 284;
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ilarity 100.0%; Pred. No. 4.7;
Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                         0; Indels
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; INDIVIDUAL ISOLATE: pAG301 insert, dru1 cDNA clone
US-08-592-936B-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IEM PC compatible
COMPUTER: IEM PC compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/592,936B
FILING DATE: 29-JAN-1996
CLASSIFICATION: 800
                                                                                                                                                                                                                          DB 4;
5.2;
                                                                                                                                                                                                                       Query Match 0.7%; Score 22; DB Best Local Similarity 100.0%; Pred. No. 5.2 Matches 22; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Dehlinger & Associates
STREET: 350 Cambridge Avenue, Suite 250
CITY: Palo Alto
STATE: CA
COUNTRY: USA
; TYPE: DNA
) ORGANISM: Homo sapiens
) FRATURE:
| NAME/KEY: modified_base
| LOCATION: (283)
| SOTHER INFORMATION: Where n is a, c, g or US-09-123-912-80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY AGENT INFO FOR ATTORNEY AGENT INFO FOR ATTORNEY AGENT INFO FOR A RECIPRATION NUMBER: 38,443
REFERENCE/DOCKET NUMBER: 4257-0012
REFERENCE/DOCKET NUMBER: 4257-0012
TELEPHONE: (650) 324-0880
TELEPHONE: (650) 324-0880
TELEPAX: (650) 324-0960
INPORMATION FOR SEQ ID NO: 10: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Sequence 10, Application US/08592936B
; Patent No. 5783393
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                      3079 tgtgaaaaaaaaaaaaaa 3100
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 751 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
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Best Local Similarity
Matches 22; Conserv
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HYPOTHETICAL: N
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US-08-592-936B-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ANTI-SENSE:
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APPLICANT: Reed, Steven G.
APPLICANT: Reed, Steven G.
APPLICANT: Reed, Steven G.
APPLICANT: Wang, Tongtong
TITLE OF INVENTION: COMPOUNDS AND METHODS FOR THERAPY OF LUNG CANCER
FILE REFERENCE: 210121.455C1
CURRENT APPLICATION NUMBER: U5/09/123,912A
CURRENT FILING DATE: 1998-07-27
PRIOR PILING DATE: 1998-07-37
RICH APPLICATION NUMBER: 09/040,802
PRIOR FILING DATE: 1998-07-318
NUMBER OF SEQ ID NOS: 114
SOFTWARE: Patentin Ver: 2.0
LENGTH: 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                      Sequence 80, Application US/09040984

Patent No. 6110883

GENERAL INFORMATION:

APPLICANT: Read, Steven G.

APPLICANT: Wang, TongTong

TITLE OF INVENTION: COMPOUNDS AND METHODS FOR DIAGNOSIS

TITLE OF INVENTION: OF LUNG CANCER

NUMBER OF SEQUENCES: 86

CORRESPONDENCE ADDRESS:

ADDRESSEE: SEED and BERRY LLP

STREET: 6300 Columbia Center, 701 Fifth Avenue

CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 0.7%; Score 22; DB 4; Length 284; Best Local Similarity 100.0%; Pred. No. 5.2; Matches 22; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOCTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/040,984
FILING DATE: 18-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          210121.456
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4437 TTTATTTTTATTTTTCCTTTTAT 4459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: MAKI, DAVIA
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 2101;
TELECOMMUNICATION INFORMATION:
TELEPHONE: 206-622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3079 tgtgaaaaaaaaaaaaaa 3100
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 284 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 206-282-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: WA
COUNTRY: USI
ZIP: 98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-123-912-80
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Gaps

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NAME: FVARS, SUSAN T.
REGISTRATION NUMBER: 38,443
REFERENCE/DOCKET NUMBER: 4257-
TELECOMMUNICATION INFORMATION:
TELEPAN: (650) 324-0860
TELEPAN: (650) 324-0960
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3079 tgtgaaaaaaaaaaaaaa 3100
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 751 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
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STATE: MASSACHUSETTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
CLASSIFICATION: 530
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Palo Alto
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STREET: 60
                                                                                                          94306
                                       CA
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Patent No. 5929302
GENERAL INFORMATION:
APPLICANT: Kellogg, Jill A.
APPLICANT: Bestwick, Richard K.
TITLE OF INVENTION: PLANT TISSUE / STAGE SPECIFIC PROMOTERS FOR TITLE OF INVENTION: REGULATED EXPRESSION OF TRANSGENES IN PLANT TITLE OF INVENTION: SCOURCES: 27
CORRESPONDENCE ADDRESS: Dehlinger & Associates
STREET: 350 Cambridge Avenue, Suite 250
                                                                               Sequence 16, Application US/08788928A;
Patent No. 5783394
GENERAL INFORMATION:
APPLICANT: Bestwick, Richard K.
TITLE OF INVENTION: TRANSCENES IN PLANTS
TITLE OF INVENTION: TRANSCENES IN PLANTS
NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: Dehlinger & Associates
STREET: 350 Cambridge Avenue, Suite 250
CORRESPONDENCE ADDRESS:
COR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 94306
COMUTER REDABLE FORM:
MEDIUM TYPE: Diskette
COMUTER: Diskette
COMUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARRE: FastSEG for Windows Version 2.0
SOFTWARRE: FastSEG for Windows Version 2.0
SOFTWARRE: PAPLICATION DATA:
APPLICATION NUMBER: US/08/788,928A
FILING DATE: 24-7AN 1996
ATTORNEY AGENT INFORMATION:
NAME: EVANS, SUSAN T.
REGISTRATION NUMBER: 38,443
REFERENCE/DOCKET NUMBER: 38,443
REFERENCE/DOCKET NUMBER: 4257-0015
TELEPHONE: (650) 324-0960
INFORMATION FOR SEQ ID NO: 16:
SEQUENCE CHARACTERISTICS:
LENGTH: 751 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
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Matches 22; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 94306
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                       RESULT 8
US-08-788-928A-16
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US-09-111-573-10
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
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ANTI-SENSE: NO

ORIGINAL SOURCE:

INDIVIDUAL ISOLATE: PAG301 insert, drul cDNA clone

US-09-111-573-10
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100.0%; Pred. No. 4.7;
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM PC compatible
OPERATING SYSTEM: DOS
SOFTWARE: EsatsERG for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/111,573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 0.7%; Score 22; DB Best Local Similarity 100.0%; Pred. No. 4.7 Matches 22; Conservative 0; Mismatches
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                                                                                                                                                                                 CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/592,936
FILING DATE: 29-GAN-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: ASCII text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/197,793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 10
US-08-197-793-1
Sequence 1, Application US/08197793
Patent No. 5510461
GENERAL INFORMATION:
APPLICANT: Meuer, S.
APPLICANT: Schoenhaut, D.
APPLICANT: Ratnofsky, S.
TITLE OF INVENTION: P932: A Newly
NUMBER OF SEQUENCES: 20
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
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